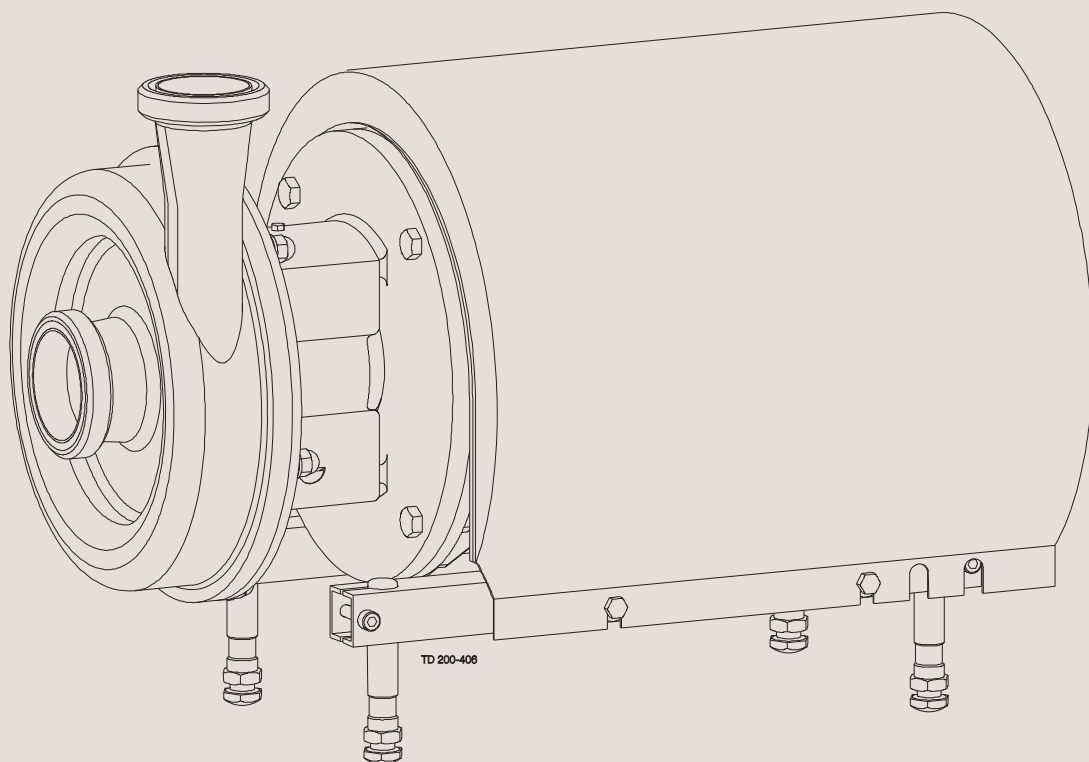




Instruction Manual

LKH Centrifugal Pump



ESE00698-EN13

2009-12

Original manual

The information herein is correct at the time of issue but may be subject to change without prior notice

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1 EC Declaration of Conformity

The designated company

Alfa Laval

Company Name

Albuen 31, DK-6000 Kolding, Denmark

Address

+45 79 32 22 00

Phone No.

hereby declare that

Pump

Denomination

LKH

Type

Year

is in conformity with the following directives with amendments:

- Low Voltage Directive 2006/95/EC
- EMC Directive 2004/108/EC
- Machinery Directive 2006/42/EC

The technical construction file is retained at the above address

Manager, Product Center Fluid Handling

Title

Bjarne Søndergaard

Name

Alfa Laval Kolding

Company



Signature

Designation



2 Safety

*Unsafe practices and other important information are emphasized in this manual.
Warnings are emphasized by means of special signs.
Always read the manual before using the pump!*

2.1 Important information

WARNING

Indicates that special procedures must be followed to avoid severe personal injury.

CAUTION

Indicates that special procedures must be followed to avoid damage to the pump.

NOTE

Indicates important information to simplify or clarify procedures.

2.2 Warning signs

General warning:



Dangerous electrical voltage:



Caustic agents:



Recycling information.

• Unpacking

- Packing material consists of wood, plastics, cardboard boxes and in some cases metal straps.
- Wood and cardboard boxes can be reused, recycled or used for energy recovery.
- Plastics should be recycled or burnt at a licensed waste incineration plant.
- Metal straps should be sent for material recycling.

• Maintenance

- During maintenance oil and wear parts in the machine are replaced.
- All metal parts should be sent for material recycling.
- Worn out or defective electronic parts should be sent to a licensed handler for material recycling.
- Oil and all non metal wear parts must be taken care of in agreement with local regulations.

• Scrapping

- At end of use, the equipment shall be recycled according to relevant, local regulations. Beside the equipment itself, any hazardous residues from the process liquid must be considered and dealt with in a proper manner. When in doubt, or in the absence of local regulations, please contact the local Alfa Laval sales company.
-

All warnings in the manual are summarized on this page.

Pay special attention to the instructions below so that severe personal injury and/or damage to the pump are avoided.

2.3 Safety precautions

Installation:

Always read the technical data thoroughly. (See chapter 6 Technical data)

Always use a lifting crane when handling the pump.



Pump without impeller screw:

Always remove the impeller before checking the direction of rotation.

Never start the pump if the impeller is fitted and the pump casing is removed.

Pump with Impeller screw:

Never start in the wrong direction of rotation with liquid in the pump.

Always have the pump electrically connected by authorized personnel.

Always have the pump electrically connected by authorized personnel. (See the motor instruction)



Operation:

Always read the technical data thoroughly. (See chapter 6 Technical data)

Never run the pump when partially installed or not completely assembled

Necessary precautions must be taken if leakage occurs as this can lead to hazardous situations

Never touch the pump or the pipelines when pumping hot liquids or when sterilising.

Never run the pump with both the suction side and the pressure side blocked.

Always handle lye and acid with great care.



Maintenance:

Always read the technical data thoroughly. (See chapter 6 Technical data)

Never service the pump when it is hot.

The pump and the pipelines must **never** be pressurised when the pump is serviced.



Motors with grease nipples:

Remember lubrication according to information plate/label on the motor.

Always disconnect the power supply when servicing the pump.



Transportation:

Transportation of the pump or the pump unit:

Never lift or elevate in any way other than described in this manual

Always drain the pump head and accessories of any liquid

Always ensure that no leakage of lubricants can occur

Always transport the pump in it's upright position

Always ensure that the unit is securely fixed during transportation

Always use original packaging or similar during transportation

3 Installation

*The instruction manual is part of the delivery. Study the instructions carefully.
The large pump sizes are very heavy.
Alfa Laval therefore recommends the use of a lifting crane when handling the pump.*

3.1 Unpacking/Delivery

Step 1

Always use a lifting crane when handling the pump (see technical data).

CAUTION

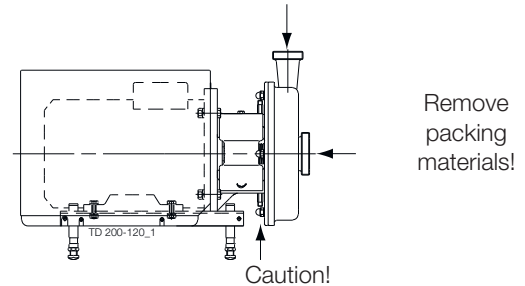
Alfa Laval cannot be held responsible for incorrect unpacking.

Check the delivery for:

1. Complete pump.
2. Delivery note.
3. Motor instructions.

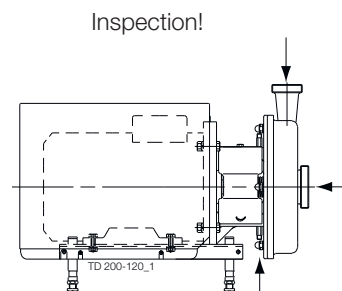
Step 2

Remove possible packing materials from the inlet and the outlet.
Avoid damaging the inlet and the outlet.
Avoid damaging the connections for flushing liquid, if supplied.



Step 3

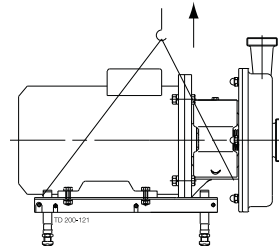
Inspect the pump for visible transport damages.



Step 4

Always remove the shroud, if fitted, before lifting the pump.

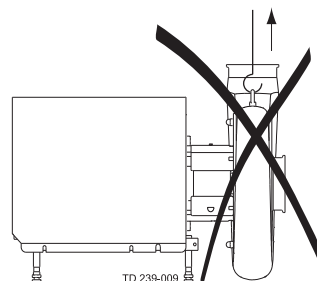
Remove the shroud before lifting!



Step 5

ONLY LKH-85 and LKH-90

Do **NOT** use eyebolt in casing to lift the pump. The eyebolt is only for casing removal.



Study the instructions carefully and pay special attention to the warnings! Always check the pump before operation.

- See pre-use check in section 3.3 Pre-use check - Pump without/with impeller screw.

The large pump sizes are very heavy. Alfa Laval therefore recommends the use of a lifting crane when handling the pump.

3.2 Installation

Step 1



Always read the technical data thoroughly.

(See chapter 6 Technical data)



Always use a lifting crane when handling the pump.

(See chapter 6 Technical data)



Always have the pump electrically connected by authorized personnel.

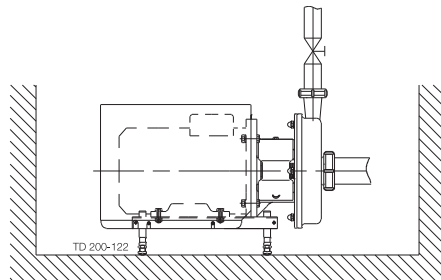
(see the motor instructions).

CAUTION

Alfa Laval cannot be held responsible for incorrect installation.

Step 2

Ensure at least 0.5 m (1.6 ft) clearance around the pump.

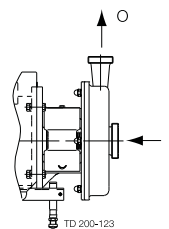


Step 3

Check that the flow direction is correct.

O: Outlet

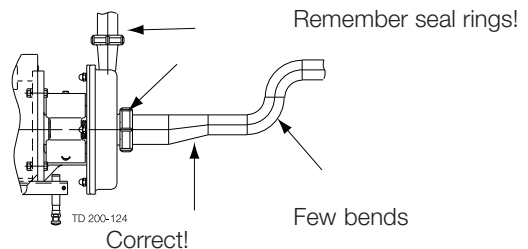
I: Inlet



Correct!

Step 4

1. Ensure that the pipelines are routed correctly.
2. Ensure that the connections are tight.



Correct!

Remember seal rings!

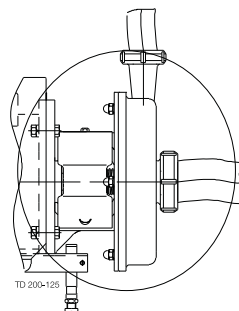
Few bends

Step 5

Avoid stressing the pump.

Pay special attention to:

- Vibrations.
- Thermal expansion of the tubes.
- Excessive welding.
- Overloading of the pipelines.



3 Installation

Study the instructions carefully and pay special attention to the warnings!

LKH-5 to -60 is without impeller screw as standard but can be supplied with one.

Check the direction of rotation of the impeller before operation.

- See the indication label on the pump.

3.3 Pre-use check - Pump without/with impeller screw

Step 1

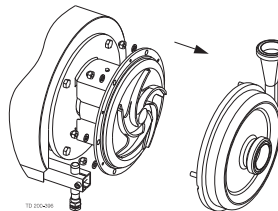


Always remove the impeller before checking the direction of rotation.



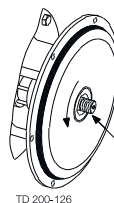
Never start the pump if the impeller is fitted and the pump casing is removed.

1.
 - A. LKH-5: Remove screws (56), spring washers (56a), clamps (55+55a) and pump casing (29).
 - B. LKH-10 to -90: Remove cap nuts (24), washers (24a) and pump casing (29).
2. Remove impeller (27) (see also instruction in section 5.3 Assembly of pump/single shaft seal).



Step 2

1. Start and stop the motor momentarily.
2. Ensure that the direction of rotation of the stub shaft (7) is anticlockwise as viewed from the inlet side.



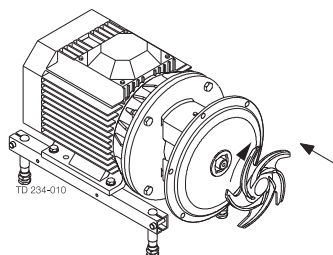
See the indication label!

Correct!

Stub shaft

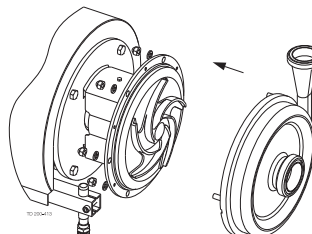
Step 3

Fit and tighten impeller (27).



Step 4

1. Fit pump casing (29).
2.
 - A. LKH-5: Fit clamps (55+55a), spring washers (56a) and tighten screws (56)
 - B. LKH-10 to -90: Fit washers (24a) and tighten cap nuts (24), according to torque values in chapter 6.3 Addendum



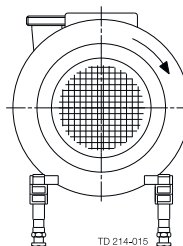
Step 1

Pump with impeller screw



Never start in the wrong direction of rotation with liquid in the pump.

1. Start and stop the motor momentarily.
2. Ensure that the direction of rotation of the motor fan is clockwise as viewed from the rear end of the motor.



See the indication label!

Correct

View from rear end of motor

Study the instructions carefully and pay special attention to the warnings!
The pump is fitted with a warning label indicating correct throttling

4.1 Operation/Control

Step 1



Always read the technical data thoroughly.
 See chapter 6 Technical data

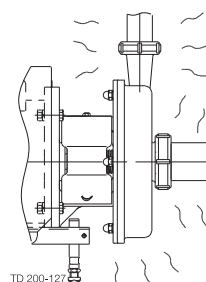
CAUTION

Alfa Laval cannot be held responsible for incorrect operation/control.

Step 2



Never touch the pump or the pipelines when pumping hot liquids or when sterilising.



Burning danger!

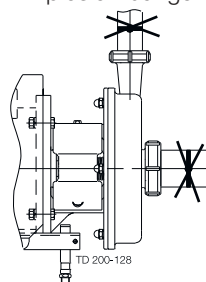


Step 3



Never run the pump with both the suction side and the pressure side blocked.

Explosion danger!



Step 4

CAUTION

The shaft seal must not run dry.

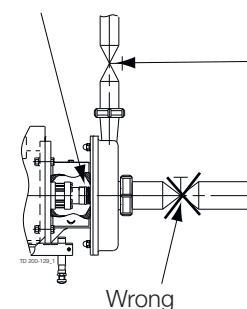
CAUTION

Never throttle the inlet side.

Do not run dry!

See the warning label!

Correct!



Wrong

4 Operation

Study the instructions carefully and pay special attention to the warnings!
The pump is fitted with a warning label indicating correct throttling

Step 5

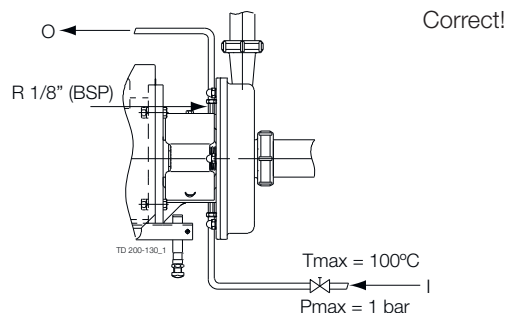
Flushed shaft seal:

1. Connect the inlet of the flushing liquid correctly.
2. Regulate the water supply correctly.
3. Observe the steam data.

- * For LKH-85: connect inlet/outlet of the flushing liquid directly on the flushing housing.

O: Free outlet

I: Inlet

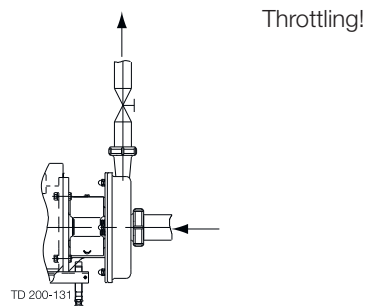


Step 6

Control:

Reduce the capacity and the power consumption by means of:

- Throttling the pressure side of the pump.
- Reducing the impeller diameter.
- Reducing the speed of the motor.



*Pay attention to possible faults.
Study the instructions carefully.*

4.2 Fault finding

NOTE!

Study the maintenance instructions carefully before replacing worn parts. - See section 5.1 General maintenance

Problem	Cause/result	Remedy
Overloaded motor	<ul style="list-style-type: none"> - Pumping of viscous liquids - Pumping of liquids with high density - Low outlet pressure (counter pressure) - Lamination of precipitates from the liquid 	<ul style="list-style-type: none"> - Larger motor or smaller impeller - Higher counter pressure (throttling) - Frequent cleaning
Cavitation: - Damage - Pressure reduction (sometimes to zero) - Increasing of the noise level	<ul style="list-style-type: none"> - Low inlet pressure - High liquid temperature 	<ul style="list-style-type: none"> - Increase the inlet pressure - Reduce the liquid temperature - Reduce the pressure drop before the pump - Reduce speed
Leaking shaft seal	<ul style="list-style-type: none"> - Dry run (See 4.1 Operation/Control) - Incorrect rubber grade - Abrasive particles in the liquid 	Replace: All wearing parts (See 5.1 General maintenance) If necessary: <ul style="list-style-type: none"> - Change rubber grade - Select stationary and rotating seal ring in Silicon Carbide/Silicon Carbide
Leaking seals	Incorrect rubber grade	Replace with seals of a different rubber grade

4 Operation

The pump is designed for cleaning in place (CIP). CIP = Cleaning In Place.
Study the instructions carefully and pay special attention to the warnings!
NaOH = Caustic Soda.
HNO₃ = Nitric acid.

4.3 Recommended cleaning

Step 1



Always handle lye and acid with great care.

Caustic danger!



Always use rubber gloves!

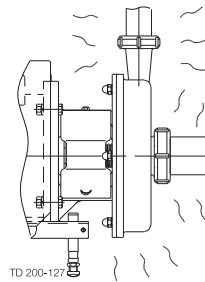


Always use protective goggles!

Step 2



Never touch the pump or the pipelines when sterilizing.



TD 200-127

Burning danger!



Step 3

Examples of cleaning agents: Use clean water, free from chlorides.

1. 1% by weight NaOH at 70°C (158°F).

1 kg (2.2 lb) NaOH	+	100 l (26.4 gal) water	= Cleaning agent.
-----------------------	---	---------------------------	-------------------

2.2 l (0.6 gal) 33%NaOH	+	100 l (26.4 gal) water	= Cleaning agent.
----------------------------	---	---------------------------	-------------------

2. 0.5% by weight HNO₃ at 70°C (158°F).

0.7 l (0.2 gal) 53% HNO ₃	+	100 l (26.4 gal) water	= Cleaning agent.
---	---	---------------------------	-------------------

Step 4

1. Avoid excessive concentration of the cleaning agent
⇒Dose gradually!
2. Adjust the cleaning flow to the process
Sterilization of milk/viscous liquids
⇒Increase the cleaning flow!

Step 5



Always rinse well with clean water after using a cleaning agent.

NOTE

The cleaning agents must be stored/disposed of in accordance with current rules/directives.

Always rinse!



Water

Cleaning agent

Maintain the pump carefully. Study the instructions carefully and pay special attention to the warnings!
Always keep spare shaft seals and rubber seals in stock.
See separate motor instructions.
Check the pump for smooth operation after service.

5.1 General maintenance

Step 1



Always read the technical data thoroughly.
(See chapter 6 Technical data)



Always disconnect the power supply when servicing the pump.

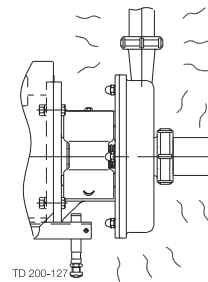
NOTE

All scrap must be stored/discharged in accordance with current rules/directives.

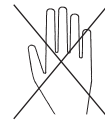
Step 2



Never service the pump when it is hot.



Burning danger!



Step 3



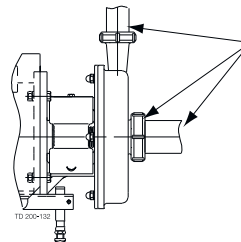
Never service the pump with pump and pipelines under pressure.

CAUTION

Fit the electrical connections correctly if they have been removed from the motor during service.
(see 3.3 Pre-use check - Pump without/with impeller screw)

CAUTION

Pay special attention to the warnings!



Atmospheric pressure required!

Step 4

Recommended spare parts:

Service kits (see chapter 7 Parts list and Service Kits).
Order Service Kits from Service kits list (see chapter 7 Parts list and Service Kits).

Ordering spare parts

Contact the Sales Department.

5 Maintenance

Maintain the pump carefully. Study the instructions carefully and pay special attention to the warnings!
 Always keep spare shaft seals and rubber seals in stock.
 See separate motor instructions.
 Check the pump for smooth operation after service.

	Shaft seal	Rubber seals	Motor bearings
Preventive maintenance	Replace after 12 months: (one-shift) Complete shaft seal	Replace when replacing the shaft seal	
Maintenance after leakage (leakage normally starts slowly)	Replace at the end of the day: Complete shaft seal	Replace when replacing the shaft seal	
Planned maintenance	<ul style="list-style-type: none"> - Regular inspection for leakage and smooth operation - Keep a record of the pump - Use the statistics for planning of inspections Replace after leakage: Complete shaft seal	Replace when replacing the shaft seal	Yearly inspection is recommended <ul style="list-style-type: none"> - Replace complete bearing if worn - Ensure that the bearing is axially locked (See motor instructions)
Lubrication	Before fitting Lubricate the O-rings with silicone grease or silicone oil	Before fitting Silicone grease or silicone oil	See section 6.2 Relubrication Intervals

Pre-use check CAUTION!

Fit the electrical connections correctly if they have been removed from the motor during service. (See 3.3 Pre-use check - Pump without/with impeller screw).

Pay special attention to warnings!

1. Start and stop the motor momentarily
2. Ensure that the pump operates smoothly.

Study the instructions carefully. The items refer to the parts list and service kits section.

Handle scrap correctly.

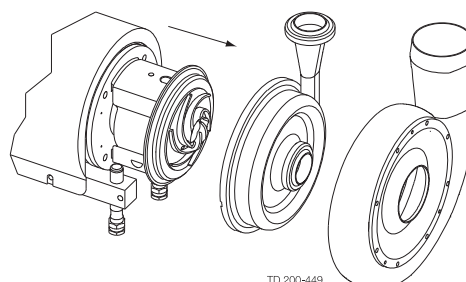
* : Relates to the shaft seal.

5.2 Dismantling of pump/shaft seals

Step 1

1.

- A. LKH-5: Remove screws (56), spring washers (56a), clamps (55+55a) and pump casing (29).
- B. LKH-10 to 90: Unscrew cap nuts (24) and remove washers (24a) and pump casing (29).

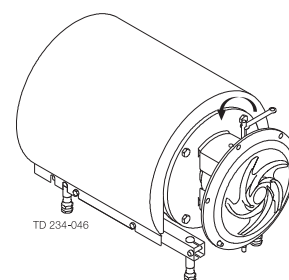


LKH-85 and LKH-90

Step 2

Flushed / Double Mechanical shaft seal:

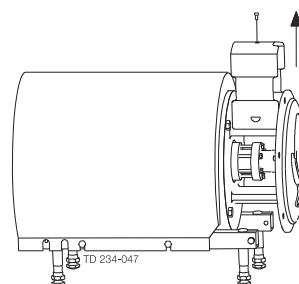
Unscrew tubes (42) using a spanner.



*

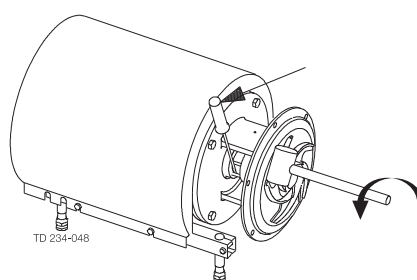
Step 3

Remove screw (23) and safety guard (22).



Step 4

1. Remove impeller screw (36), if fitted.
2. Remove impeller (27). If necessary, loosen the impeller by knocking gently on the impeller vanes.
3. Remove the O-ring (38) from the impeller, if fitted.

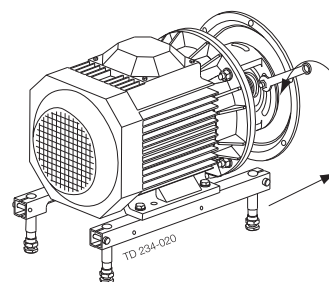


Counterhold with a screwdriver!

If necessary!

Step 5

1. Pull off the O-ring (26) from back plate (25).
2. Unscrew nuts (20) and remove washers (21) and the back plate.



5 Maintenance

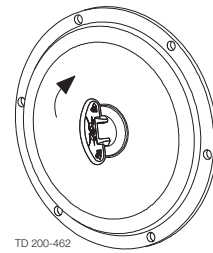
Study the instructions carefully. The items refer to the parts list and service kits section.

Handle scrap correctly.

* : Relates to the shaft seal.

Step 6

1. Remove the stationary seal ring (11).
2. Remove the O-ring (12) from back plate (25).



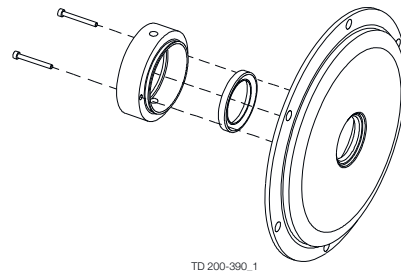
Use the tool
supplied

Left hand
thread!

Step 7

Flushed shaft seal:

1. Remove screws (41) and seal housing (40).
2. Pull out lip seal (43) from the seal housing.

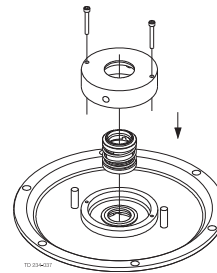


*

Step 8

Double mechanical shaft seal:

1. Remove screws (41) and seal housing (40a).
2. Remove rotating seal rings (14) and drive ring (52) from spring (13).
3. Remove O-rings (15) from rotating seal rings (14).
4. LKH-70 to 90: Remove cups (54) from rotating seal rings.

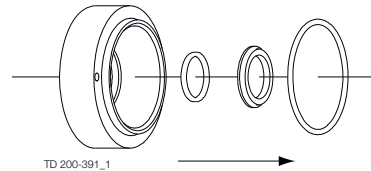


*

Step 9

Double mechanical shaft seal:

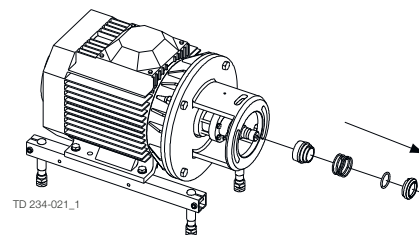
1. Remove stationary seal ring (51) from seal housing (40a).
2. Remove O-ring (50) from stationary seal ring (51).
3. Remove O-ring (44) from seal housing (40a).



*

Step 10

1. Remove the complete shaft seal from stub shaft (7).
2. Remove spring (13) and rotating seal ring (14) from the drive ring (10).



*

Study the instructions carefully. The items refer to the parts list and service kits section.

Handle scrap correctly.

* : Relates to the shaft seal.

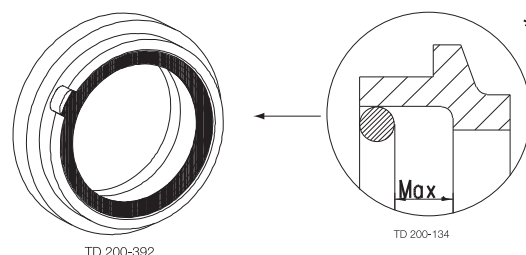
5.3 Assembly of pump/single shaft seal

Step 1

1. Remove spring (13).

NOTE!

Make sure that O-ring (15) has max. clearance from the sealing surface.

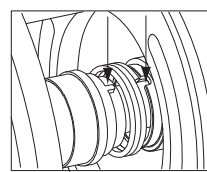


Step 2

1. Refit spring (13) on rotating seal ring (14).
2. Fit the spring and the rotating seal ring on drive ring (10).

CAUTION

Ensure that the driver on the drive ring enters the notch in the rotating seal ring.

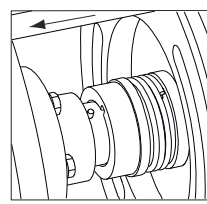


Step 3

- Fit the complete shaft seal on stub shaft (7).

NOTE!

Make sure that connex pin (8) on the stub shaft enters the notch in drive ring (10).

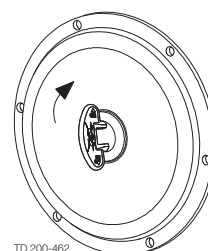


Step 4

1. Fit O-ring (12) on stationary seal ring (11) and lubricate.
2. Screw the stationary seal ring into back plate (25).

CAUTION

Only tighten by hand to avoid deforming the stationary seal ring.
(Max 7Nm/5 lbf-ft)

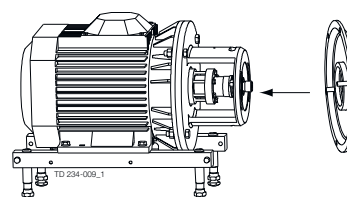


Use the tool supplied

Left hand thread!

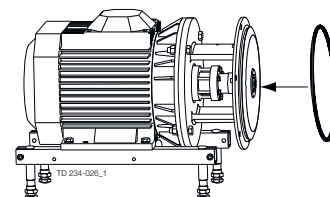
Step 5

1. Clean the sealing surfaces with contact cleaner before fitting back plate (25).
2. Carefully guide the back plate onto adaptor (16).
3. Fit washers (21) and nuts (20).



Step 6

- Lubricate O-ring (26) and slide it onto back plate (25).



5 Maintenance

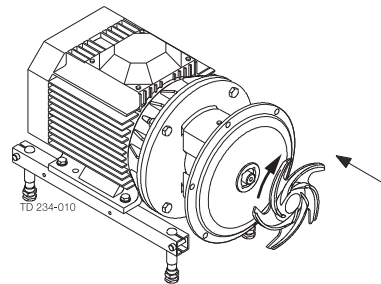
Study the instructions carefully. The items refer to the parts list and service kits section.

Handle scrap correctly.

* : Relates to the shaft seal.

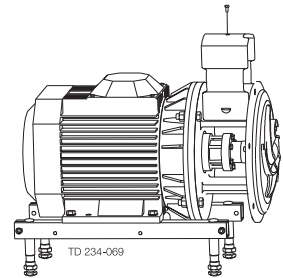
Step 7

1. Lubricate O-ring (38) and fit it in impeller (37), if impeller screw is used.
 2. Lubricate impeller hub with silicone grease or oil.
 3. Screw the impeller onto stub shaft (7).
 4. Fit impeller screw (39) and tighten, if used.
- Torque - 5-60 = 20 Nm (7.4 lbf-ft)
Torque - 70-90 = 50 Nm (37 lbf-ft)



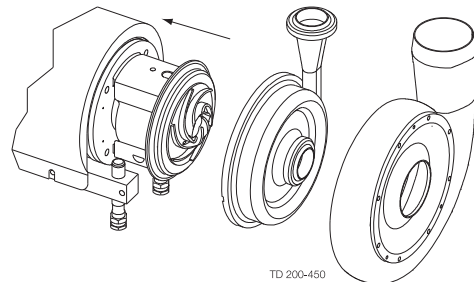
Step 8

Fit safety guards (22) and screw (23) and tighten.



Step 9

1.
 - A. LKH-5: Fit pump casing (29), clamps (55+55a), spring washers (56a) and screws (56).
 - B. LKH-10 to -90: Fit pump casing (29), washers (24a) and cap nuts (24).
2. Adjust pump casing to the right position.
3.
 - A. LKH-5: Tighten nuts (20) for back plate (25) and tighten screws (56).
 - B. LKH-10 to -90: Tighten nuts (20) for back plate (25) and tighten cap nuts (24), according to torque values in chapter 6.3 Addendum.



LKH-85 and LKH-90

Study the instructions carefully. The items refer to the parts list and service kits section.

Lubricate the rubber seals before fitting them.

* : Relates to the shaft seal.

5.4 Assembly of pump/flushed shaft seal

Step 1

Flushed shaft seal :

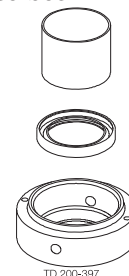
LKH-5 to -60 use $\varnothing 63$ mm tube

LKH-70 to -90 press in lip seal by hand

1. Fit lip seal (43) in seal housing (40).
2. Lubricate O-ring (44) and slide onto the seal housing (40).
3. Fit the seal housing on back plate (25) and tighten screws (41).

Use $\varnothing 63$ mm tube!

*

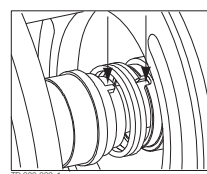


Step 2

1. Lubricate O-ring (45) and fit it in drive ring (10).
2. Fit spring (13) and rotating seal ring (14) on the drive ring.

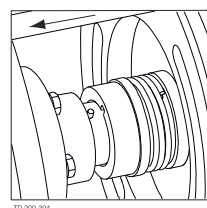
CAUTION

Ensure that the driver on the drive ring enters the notch in the rotating seal ring.



Step 3

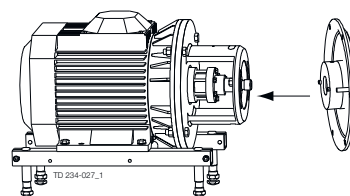
Fit complete shaft seal on stub shaft (7) so that connex pin (8) on the stub shaft enters the notch in drive ring (10).



*

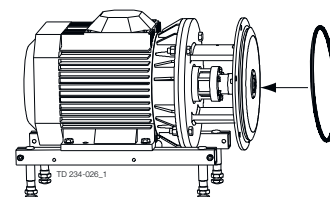
Step 4

1. Carefully guide back plate (25) onto adaptor (16).
2. Fit washers (21) and nuts (20).



Step 5

Lubricate O-ring (26) and slide it onto back plate (25).

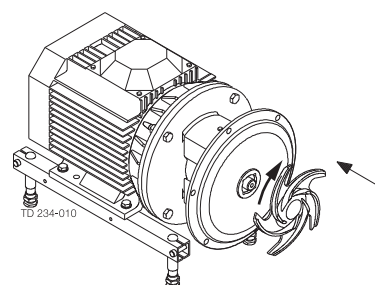


Step 6

1. Lubricate O-ring (38) and fit it in impeller (37), if impeller screw is used.
2. Lubricate the impeller hub with silicone grease or oil.
3. Screw impeller (27) onto stub shaft (7).
4. Fit impeller screw (36) and tighten, if used.

Torque - 5-60 20 Nm (7.4 lbf-ft)

Torque - 70-90 50 Nm (37 lbf-ft)



5 Maintenance

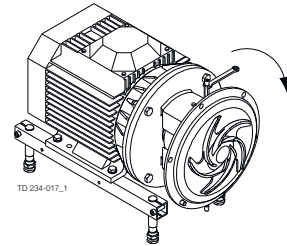
Study the instructions carefully. The items refer to the parts list and service kits section.

Lubricate the rubber seals before fitting them.

** : Relates to the shaft seal.*

Step 7

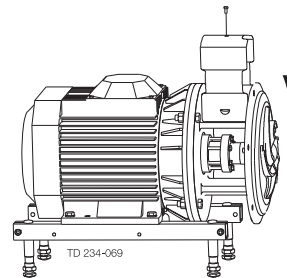
1. Screw tubes (42) into seal housing (40).
2. Tighten with a spanner.



*

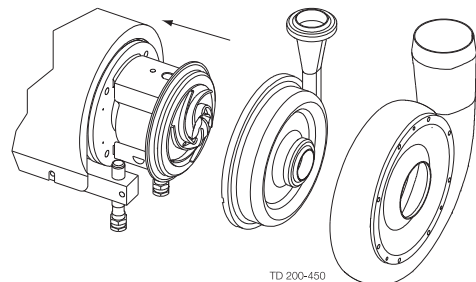
Step 8

Fit safety guard (22) and screw (23) and tighten.



Step 9

1.
 - A. LKH-5: Fit pump casing (29), clamps (55+55a), spring washers (56a) and screws (56).
 - B. LKH-10 to -90: Fit pump casing (29).
2. Tighten nuts (20) for back plate (25).
3.
 - A. LKH-5: Tighten nuts (20) for back plate (25) and tighten screws (56).
 - B. LKH-10 to -90: Fit washers (24a) and cap nuts (24) and tighten, according to torque values in chapter 6.3 Addendum.



LKH-85 and LKH-90

Study the instructions carefully. The items refer to the parts list and service kits section.

Lubricate the rubber seals before fitting them.

* : Relates to the shaft seal.

5.5 Assembly of pump/double mechanical shaft seal

Step 1

1. Fit O-rings (15) in rotating seal rings (14).
2. LKH-70 to -90: Fit cups (54) on rotating seal rings (14).
3. Fit spring (13) on one of the rotating seal rings (14) and place the drive ring (52) in between.

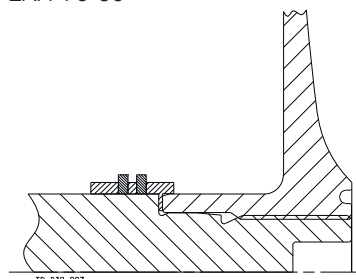
*

Step 2

1. LKH-70 to -90: Turn the drive ring (52) in order to place it correctly on the pump shaft (7).
2. Fit the second rotating ring (14) on the other end of the spring.
3. Place the parts on the stationary seal ring fitted in back plate (25).

Only LKH-70-90

*



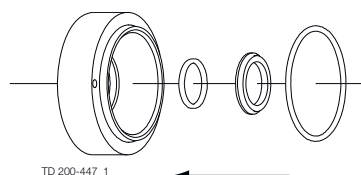
NOTE

Ensure that both drive pins on the drive ring enters the notches in rotating seal rings.

Step 3

1. Lubricate O-ring (44) and slide onto seal housing (40a).
2. Lubricate O-ring (50) and fit on stationary seal ring (51) and fit this in the seal housing.

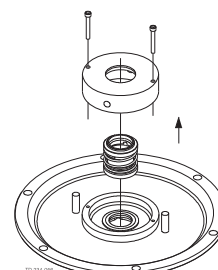
*



Step 4

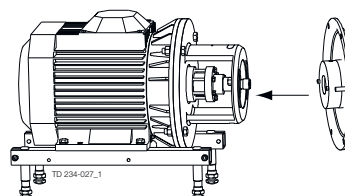
1. Clean the sealing surfaces with contact cleaner.
2. Fit seal housing (40a) on the back plate (25) and tighten screws (41).

*



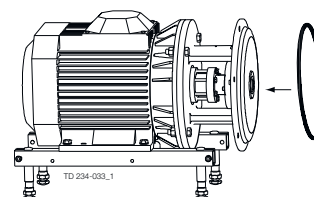
Step 5

1. To enable fitting back plate (25) with the shaft seal remove connex pin (8) from stub shaft (7) (if fitted).
2. Carefully guide the back plate onto adaptor (16).
3. Fit washers (21) and nuts (20).



Step 6

Lubricate O-ring (26) and slide it onto back plate (25).



5 Maintenance

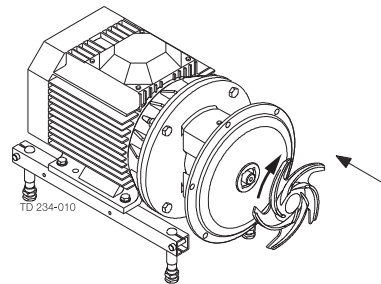
Study the instructions carefully. The items refer to the parts list and service kits section.

Lubricate the rubber seals before fitting them.

* : Relates to the shaft seal.

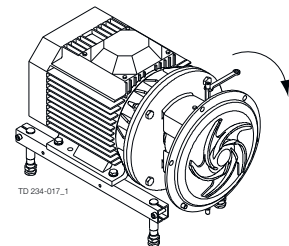
Step 7

1. Lubricate O-ring (38) and fit it in impeller (37), if impeller screw is used.
 2. Lubricate the impeller hub with silicone grease or oil.
 3. Screw impeller (27) onto stub shaft (7).
 4. Fit impeller screw (36) and tighten, if used.
- Torque - 5-60 20 Nm (7.4 lbf-ft)
Torque - 70-90 50 Nm (37 lbf-ft)



Step 8

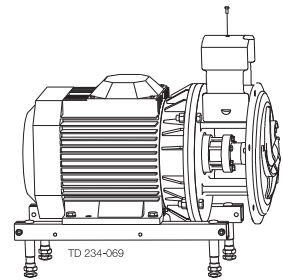
1. Screw tubes (42) into seal housing (40a).
2. Tighten with a spanner.



*

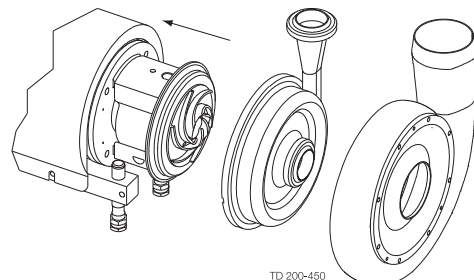
Step 9

Fit safety guard (22) and screw (23) and tighten.



Step 10

1. Fit pump casing (29).
2. Tighten nuts (20) for back plate (25).
3.
 - A. LKH-5: Fit clamps (55+55a), spring washers (56a) and screws (56) and tighten.
 - B. LKH-10 to -90: Fit washers (24a) and cap nuts (24) and tighten, according to torque values in chapter 6.3 Addendum.



LKH-85 and LKH-90

Study the instructions carefully. The items refer to the parts list and service kits section.

Lubricate the rubber seals before fitting them.

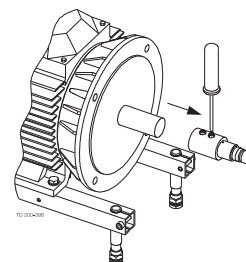
* : Relates to the shaft seal.

5.6 Adjustment of shaft (LKH-5)

Step 1

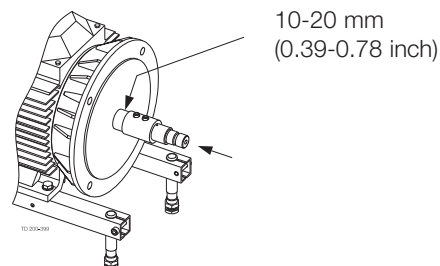
1. Loosen screws (6).
2. Pull off stub shaft (7).

See special cleaning procedure for tapped hole in stub shaft page 29.



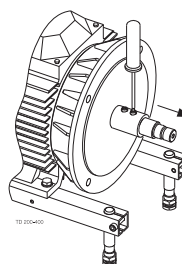
Step 2

1. Push stub shaft (7) onto the motor shaft. Screws (4) must fit in keyway on the motor shaft.
2. Check that the clearance between the end of the stub shaft and the motor flange is 10-20 mm (0.39 - 0.78 inch).



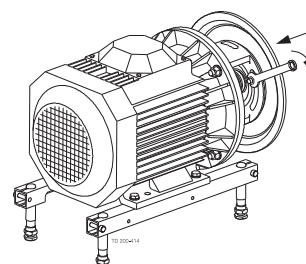
Step 3

1. Tighten screws (4) lightly and evenly.
2. Ensure that stub shaft (7) can be moved on the motor shaft.



Step 4

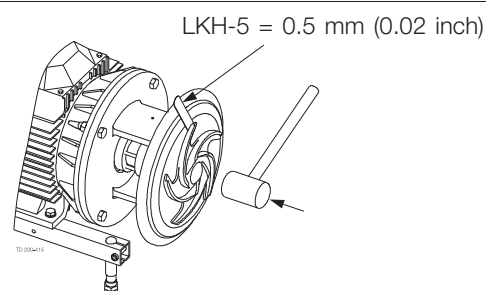
1. **For double mechanical shaft seal:** Fit drive ring (52) on stub shaft (7).
2. Fit back plate (25), washers (21) and nuts (20) and tighten.



*

Step 5

1. Fit impeller (27) on stub shaft (7).
2. Ensure that the clearance between the impeller and back plate (25) is correct: 0.5 mm (0.02 inch) for LKH-5.

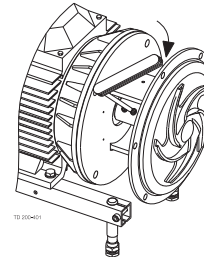


5 Maintenance

Study the instructions carefully. The items refer to the parts list and service kits section.
Lubricate the rubber seals before fitting them.
** : Relates to the shaft seal.*

Step 6

Tighten screws (4) evenly to 18 Nm (13 lbf-ft).



Study the instructions carefully. The items refer to the parts list and service kits section.

Lubricate the rubber seals before fitting them.

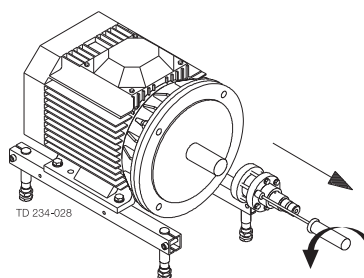
* : Relates to the shaft seal.

5.7 Adjustment of shaft (LKH-10 to -90)

Step 1

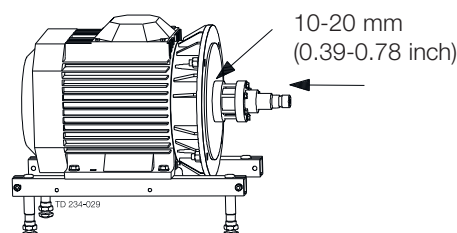
1. Loosen screws (6).
2. Pull off stub shaft (7) together with compression rings (5a,5b).

See special cleaning procedure for tapped hole in stub shaft page 29.



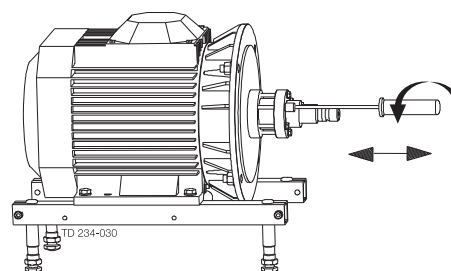
Step 2

1. Push stub shaft (7) together with compression rings (5a, 5b) onto the motor shaft.
2. Check that the clearance between the end of the stub shaft and the motor flange is 10-20 mm (0.39 - 0.78 inch).



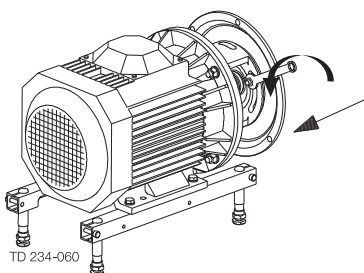
Step 3

1. Tighten screws (6) lightly and evenly.
2. Ensure that stub shaft (7) can be moved on the motor shaft.



Step 4

1. **For double mechanical shaft seal:**
Fit drive ring (52) on stub shaft (7).
2. Fit back plate (25), washers (21) and nuts (20) and tighten.

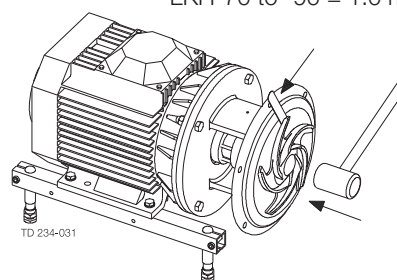


Step 5

1. Fit impeller (27) on stub shaft (7).
2. Ensure that the clearance between the impeller and back plate (25) is correct: 0.5 mm (0.02 inch) for LKH-10 to 60 and 1.0 mm (0.039 inch) for LKH-70 to -90.

NOTE! If pump has been ordered with increased clearance between impeller and backplate this additional clearance must be taken into account when adjusting the shaft.

LKH-10 to -60 = 0.5 mm (0.02 inch)
LKH-70 to -90 = 1.0 mm (0.039 inch)



5 Maintenance

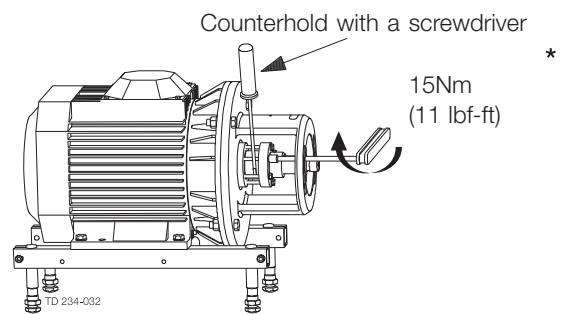
Study the instructions carefully. The items refer to the parts list and service kits section.

Lubricate the rubber seals before fitting them.

** : Relates to the shaft seal.*

Step 6

1. Remove impeller (27), back plate (25) and drive ring (52).
2. Tighten screws (6) evenly to 15 Nm (11 lbf-ft).



5.8 Cleaning Procedure

Cleaning Procedure for Soiled Impeller Screw Tapped Hole:

1. Remove stub shaft (7) per section 4 of Service manual.
2. Submerge and soak Stub Shaft for 5 minutes in COP tank with 2% caustic wash
3. Scrub the blind tapped impeller screw hole vigorously by plunging a clean 1/2" diameter sanitary bristle pipe brush in and out of the hole for two minutes while submerged.
4. Soak Stub Shaft (7) in acid sanitizer for 5 minutes, then scrub blind tapped hole as described in step 3 above.
5. Rinse well with clean water and blow-dry blind tapped hole with clean air.
6. Swab test the inside of the tapped hole to determine cleanliness.
7. Should the swab test fail, repeat steps 2 thru 6 above until swab test is passed.

Should swab testing continue to fail, or time is of the essence, install a new (spare) Stub Shaft (7).

6 Technical data

*It is important to observe the technical data during installation, operation and maintenance.
Inform the personnel about the technical data.*

6.1 Technical data

Data				
Max. inlet pressure	LKH-5 : LKH-10 to -80 (50 Hz): LKH-85 and LKH-90 (50 Hz): LKH-10 to -60 (60 Hz): LKH-70, LKH-75, LKH-85, LKH-90 (60 Hz):	600 kPa 1000 kPa 500 kPa 1000 kPa 500 kPa	(6 bar) (10 bar) (5 bar) (10 bar) (5 bar)	(87 psi) (145 psi) (72.5 psi) (145 psi) (72.5 psi)
Temperature range	-10° C to +140° C (EPDM) (14 to 284°F)			
Noise level	60-80 dB (A)			
Materials				
Product wetted steel parts	AISI 316L			
Other steel parts	AISI 304			
Finish	Semi-bright			
Product wetted seals	EPDM (standard)			
Other O-rings	EPDM			
Alternative seals	Nitrile (NBR), Fluorinated rubber (FPM) and FEP			
Shaft seal				
Seal types	External single, flushed or double mechanical seal			
Max. water pressure (flushed seal)	Normally atmospheric (max. 1 bar) (max. 14.5 psi)			
Water consumption (flushed seal)	0.25 - 0.5 l/min. (0.07-0.13 gl)			
Max. water pressure LKH-5 to -60 (DMS)	Normally atmospheric (max. 5 bar) (max. 72.5 psi)			
Max. water pressure LKH-70 to -90 (DMS)	Normally atmospheric (max. 3 bar) (max. 43.5 psi)			
Water consumption (double mechanical seal)	0.25-0.5 l/min. (0.07-0.13 gl)			
Material, stationary seal ring	Acid resistant steel with sealing surface of Silicon Carbide			
Material, rotating seal ring	Carbon (standard) or Silicon Carbide			
Material, O-rings	EPDM (standard)			
Alternative material, O-rings	Nitrile (NBR), Fluorinated rubber (FPM) and FEP			
Motor				
Foot-flanged motor acc. to IEC metric standard 2 poles = 3000/3600 rpm. at 50/60 Hz IP55 (drain hole with labyrinth plug), insulation class F				
Motor sizes (kW), 50 Hz	0.75 - 1.1 - 1.5 - 2.2 - 3 - 4 - 5.5 - 7.5 - 11 - 15 -18.5 - 22 - 30 - 37 - 45 - 55 - 75 - 90 - 110 kW			
Motor sizes (kW), 60 Hz	0.9 - 1.3 - 1.75 - 2.5 - 3.5 - 4.6 - 6.4 - 8.6 - 12.5 -17 - 21 - 25 - 35 - 43 - 52 - 63 - 86 - 105 - 125 kW.			
Motor sizes (hp), 60 Hz	1.5 - 2.0 - 3.0 - 5.0 - 7.5 - 10.0 - 15.0 - 20.0 - 25.0 - 30.0 - 40.0 - 50.0 - 60.0 - 75.0 - 100.0 - 125.0 - 150.0 hp			
Voltage and frequency				
Voltage and frequency (standard)	3~, 50 Hz, 220-240VΔ/380-420VY ≤ 4 kW 3~, 60 Hz, 250-280VΔ/440-480VY ≤ 4.6 kW 3~, 50 Hz, 380-420VΔ/660-690VY ≥ 5.5 kW 3~, 60 Hz, 440-480VΔ ≥ 6.3 kW			

For further information - see PD-sheet.

Relubrication interval 50 Hz (3000 rpm)/Relubrication interval 60 Hz (3600 rpm). (Vendor) quantity in Drive End/quantity in Non Drive End.

6.2 Relubrication Intervals

The table is for 100°C internal bearing temperature. an increase in temperature of 15°C (ambient or internal in bearings), will reduce the greasing interval and bearing lifetime by 50%. Lubrication interval for vertically mounted pumps is half the value stated in the table.

Frame size	Motor power (kW)	LKH-5 - 90 LKHI-10 - 60* LKH-110* LKHSP LKH Ultra Pure 50/60 Hz	LKHP-10 - 60 LKHI-10 - 60 LKH-110 50/60 Hz	LKH-122/P LKH-123/P LKH-124/P 50/60 Hz
80	0.75	Permanently lubricated (ABB)	Not available	Not available
80	1.1	Permanently lubricated (ABB)	Not available	Not available
90	1.5	Permanently lubricated (ABB)	Permanently lubricated (ABB)	Not available
90	2.2	Permanently lubricated (ABB)	Permanently lubricated (ABB)	Not available
100	3.0	Permanently lubricated (ABB)	Not available	Not available
112	4.0	Permanently lubricated (ABB)	4300h/3300h DE/NDE:10g (Brook, ABB)	Not available
132	5.5	Permanently lubricated (ABB)	3600h/3000h DE/NDE:15g (Brook, ABB)	Not available
132	7.5	Permanently lubricated (ABB)	3600h/3000h DE/NDE:15g (Brook, ABB)	Not available
160	11	Permanently lubricated (ABB)	3100h/2300h DE/NDE:25g (Brook, ABB)	Not available
160	15	Permanently lubricated (ABB)	3100h/2300h DE/NDE:25g (Brook, ABB)	Not available
160	18.5	Permanently lubricated (ABB)	3100h/2300h DE/NDE:25g (Brook, ABB)	Not available
180	22	Permanently lubricated (ABB)	2600h/2000h DE/NDE:30g (Brook, ABB)	Not available
200	30	Permanently lubricated (ABB) 4300h/3500h DE/NDE: 23g (Brook)	4000h/2800h DE/NDE:45g (Brook, ABB)	4000h/2800h DE/NDE:45g (Brook, ABB)
200	37	Permanently lubricated (ABB) 4300h/3500h DE/NDE: 23g (Brook)	4000h/2800h DE/NDE:45g (Brook, ABB)	4000h/2800h DE/NDE:45g (Brook, ABB)
200	45	Permanently lubricated (ABB) 4300h/3500h DE/NDE: 23g (Brook)	4000h/2800h DE/NDE:45g (Brook, ABB)	4000h/2800h DE/NDE:45g (Brook, ABB)
250	55	Permanently lubricated (ABB) 3950h/3200h DE/NDE: 26g (Brook)	Not available	3500h/2500h DE/NDE:45g (Brook, ABB)
250	75	Permanently lubricated (ABB) 3950h/3200h DE/NDE: 26g (Brook)	Not available	3500h/2500h DE/NDE:45g (Brook, ABB)

* inlet pressure < 10 bar (145 psi)

Recommended grease types: - Mobilgrease HP
- ESSO Unirex N3

- Shell Lipex EP2
- SKF LGHT3

- Castrol LMX

6 Technical data

6.3 Addendum

Section 1

Tightening torques

Below table specifies the tightening torques for the screws, bolts and nuts in this pump.

Always use below torques if no other values are stated. This can be a matter of personal safety.

Size	Tightening torque	
	Nm	lbf-ft
M8	20	14.8
M10	40	29.5
M12	67	49.0
M14	110	81.0

Section 2

Noise

Pump Type	Sound pressure level (dBA)
LKH-5	60
LKH-10	69
LKH-15	72
LKH-20	70
LKH-25	74
LKH-35	71
LKH-40	75
LKH-45	70
LKH-50	75
LKH-60	77
LKH-70	88
LKH-75	79
LKH-85	86
LKH-90	75

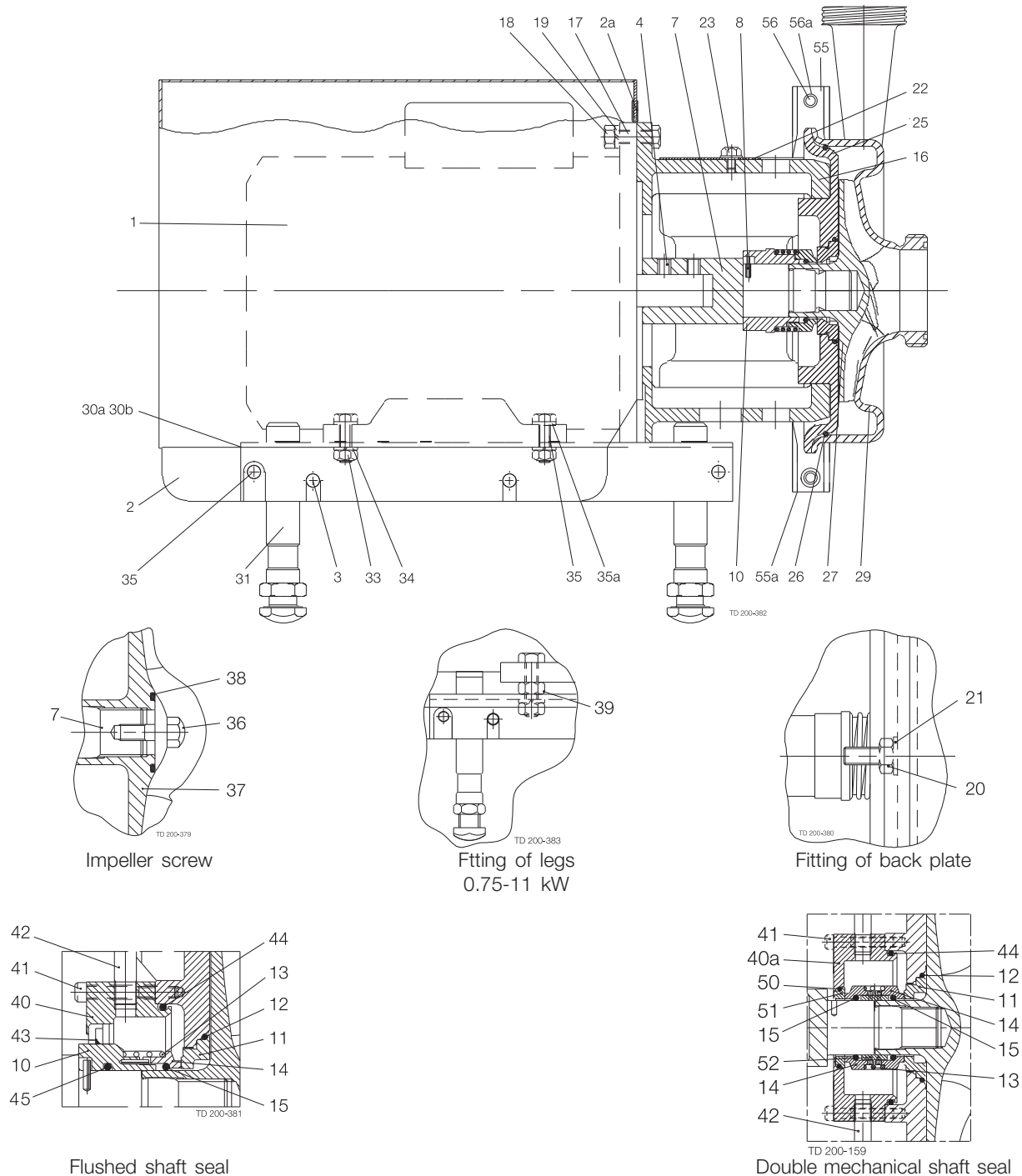
The noise measurements are carried out with original motor and shroud, approximately at the Best Efficiency Point (BEP) with water at ambient temperature and at 50Hz.

Very often the noise level generated by the flow through the process system (eg. valves, pipes, tanks etc.) is much higher than what is generated by the pump itself. Therefore it is important to consider the noise level from the total system and take the necessary precautions with regards to personal safety if required.

The drawing shows LKH pump, sanitary version.

The items refer to the parts lists in the following sections 7.4 LKH-5 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal

7.1 LKH-5 Sanitary Version

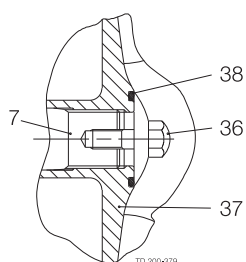
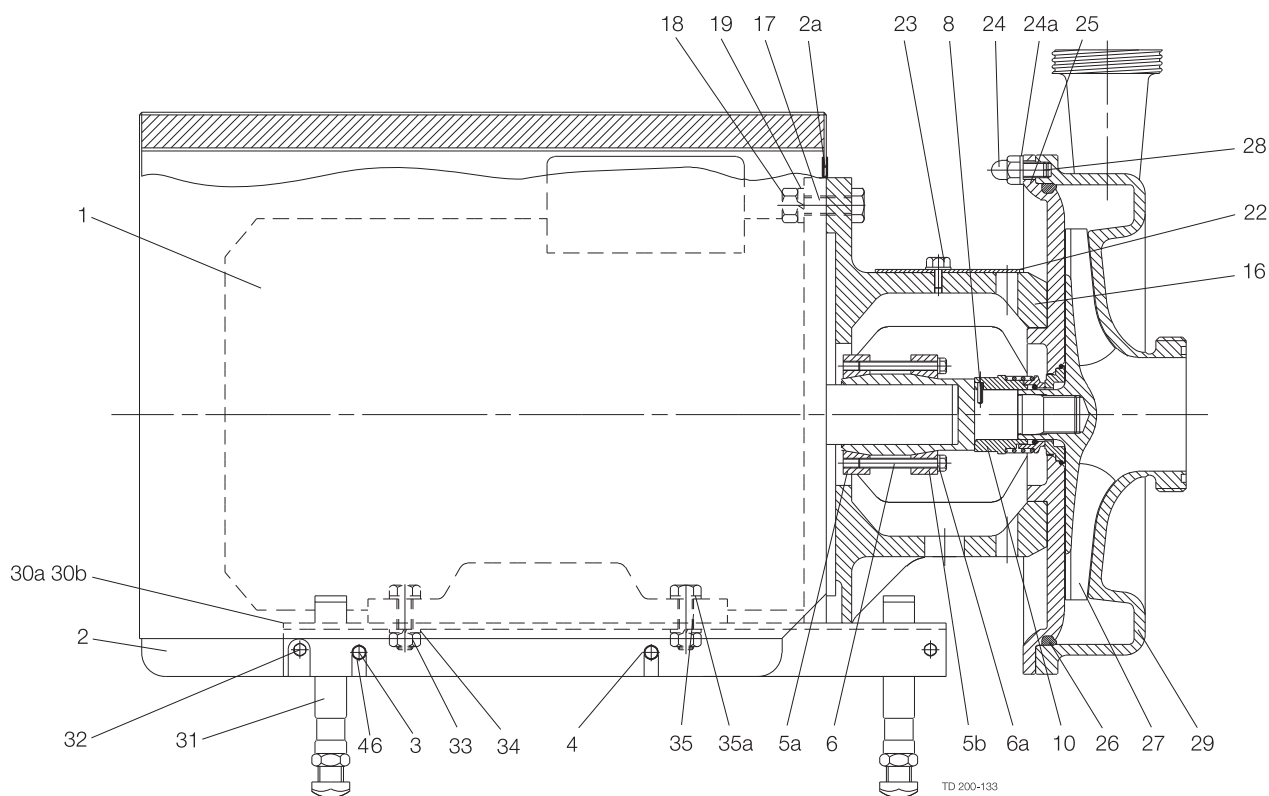


7 Parts list and Service Kits

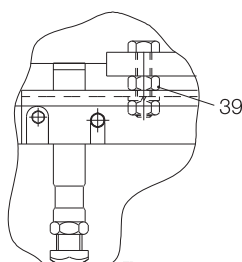
The drawing shows LKH pump, sanitary version.

The items refer to the parts lists in the following sections 7.5 LKH-10 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal to 7.13 LKH-60 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal

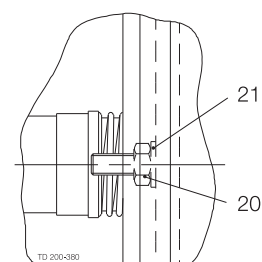
7.2 LKH-10, -15, -20, -25, -35, -40, -50, -60 Sanitary Version



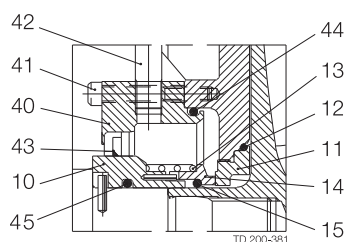
Impeller screw



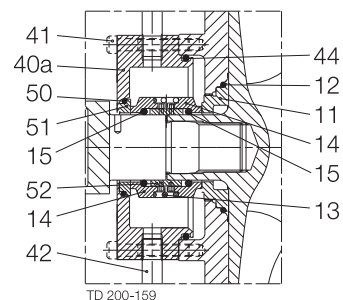
Only used for 0.75, 1.1 and 3 kW
Fitting of legs



Fitting of back plate



Flushed shaft seal

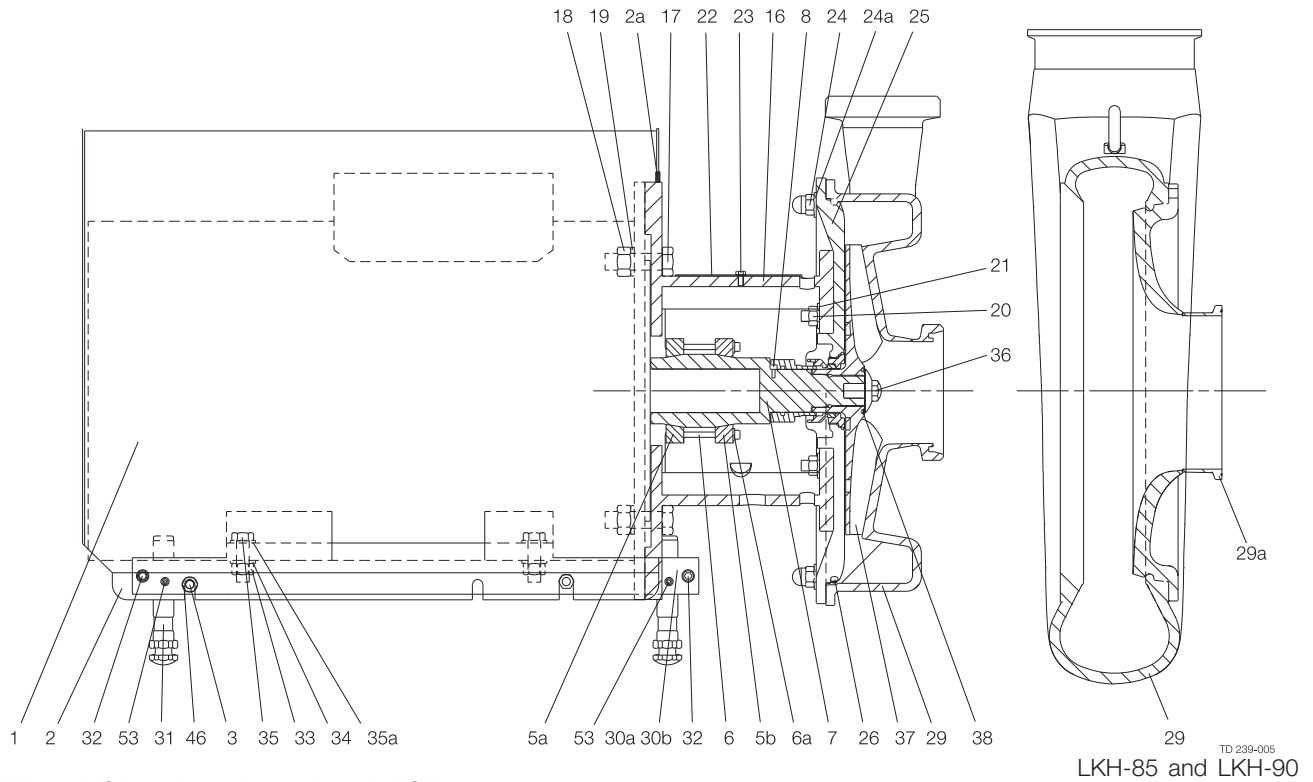


Double mechanical shaft seal

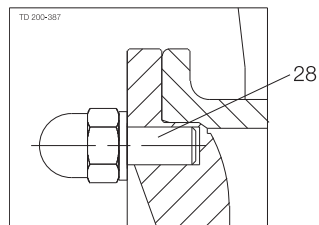
The drawing shows LKH pump, sanitary version.

The items refer to the parts lists in the following sections 7.15 LKH-70 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal to 7.19 LKH-90 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal

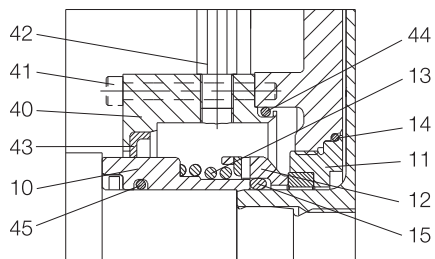
7.3 LKH-70 - 90 Sanitary Version



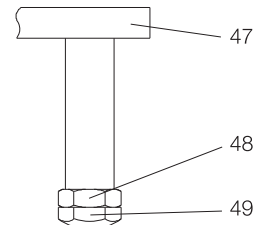
LKH-75: USA version only, no shroud, US leg set.



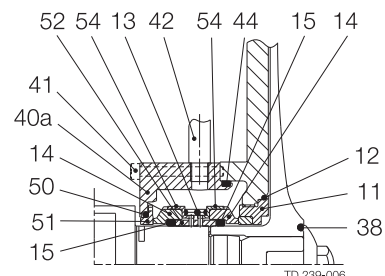
Fitting of back plate



Flushed shaft seal



Fitting of legs 55 - 110 kW



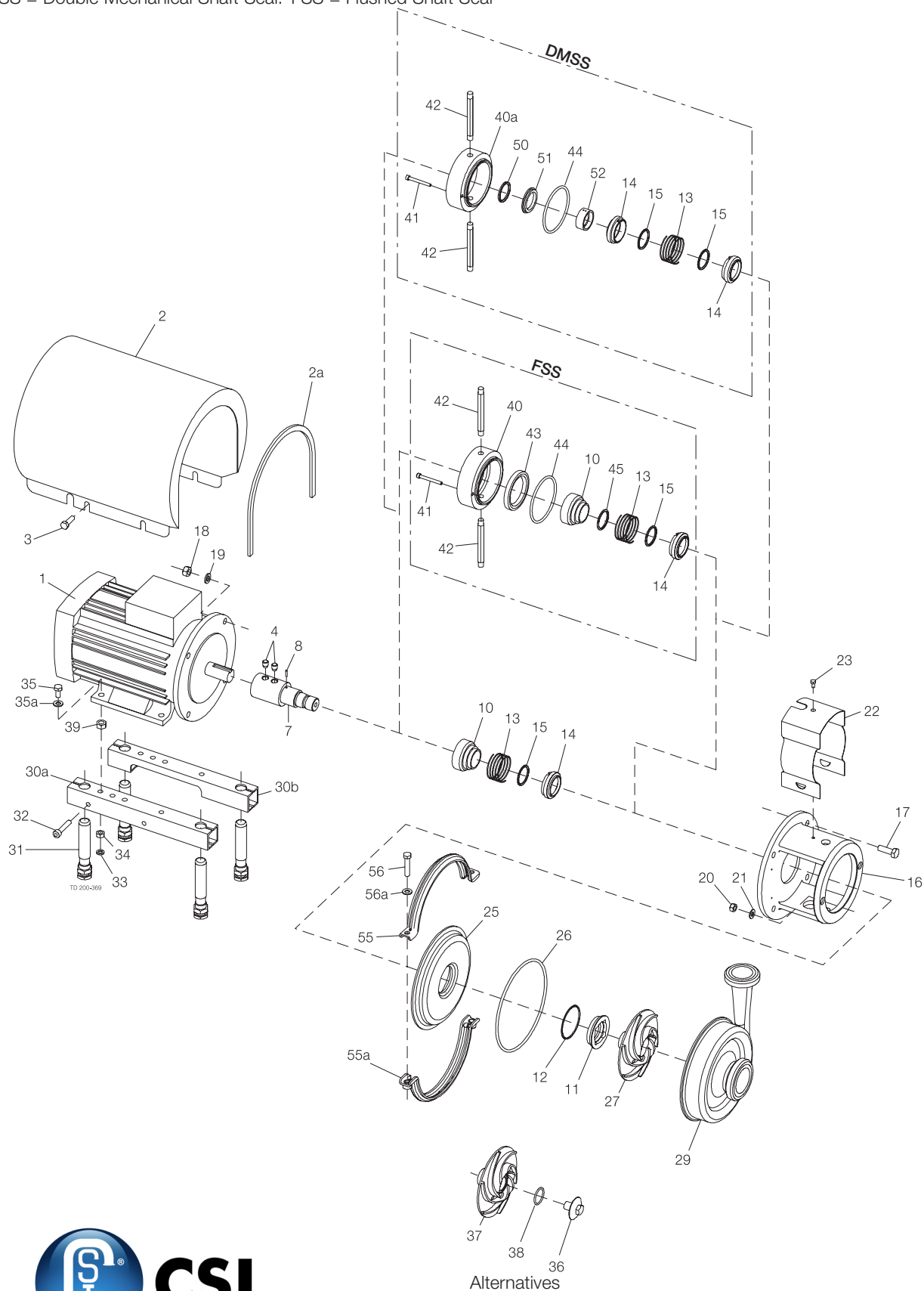
Double mechanical shaft seal

7 Parts list and Service Kits

The drawing and the parts list include all items.

7.4 LKH-5 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal

DMSS = Double Mechanical Shaft Seal. FSS = Flushed Shaft Seal



7 Parts list and Service Kits

The drawing and the parts list include all items.

Parts list

Pos.	Qty	Denomination
1	1	Motor
2	1	Shroud
2a	1	Edge list
3	4	Screw
4	2	Screw
7	1	Shaft and pin (pos.8)
8	1	Connex pin
10	1	Drive ring
16	1	Adaptor
17	4	Screw for adaptor
18	4	Nut for adaptor
19	4	Washer for adaptor
20	2	Nut
21	2	Washer
22	1	Safety guard
23	1	Screw for safety guard
25	1	Back plate
26	1	O-ring
27	1	Impeller
29	1	Pump casing
30a	1	Support bar, right
30b	1	Support bar, left
31	4	leg
32	4	Screw
33	4	Nut
34	4	Spring washer
35	4	Screw
35a	4	Washer
36	1	Impeller screw
37	1	Impeller for impeller screw
38	1	O-ring
39	4	Nut
40	1	Seal housing
40a	1	Seal housing
41	2	Screw for seal housing
42	2	Tube
55	1	Upper clamp
55a	1	Lower clamp
56	2	Screw
56a	2	Spring washer

□◆○★▲
✧◇■%⊗●

◆★▲◇⊗●

Service kits

Denomination	C/SIC	SIC/SIC
Service kit for single shaft seal		
Service kit, EPDM (Std.)	□ 9611-92-2302	✧ 9611-92-2522
Service kit, NBR	□ 9611-92-2303	✧ 9611-92-2523
Service kit, FPM	□ 9611-92-2304	✧ 9611-92-2524
Service kit, FEP	□ 9611-92-2305	✧ 9611-92-2525
Service kit for single shaft seal and impeller screw		
Service kit, EPDM (Std.)	◆ 9611-92-2306	◇ 9611-92-2526
Service kit, NBR	◆ 9611-92-2307	◇ 9611-92-2527
Service kit, FPM	◆ 9611-92-2308	◇ 9611-92-2528
Service kit, FEP	◆ 9611-92-2309	◇ 9611-92-2529
Service kit for flushed shaft seal		
Service kit, EPDM (Std.)	○ 9611-92-2310	■ 9611-92-2530
Service kit, NBR	○ 9611-92-2311	■ 9611-92-2531
Service kit, FPM	○ 9611-92-2312	■ 9611-92-2532
Service kit, FEP	○ 9611-92-2313	■ 9611-92-2533
Service kit for flushed shaft seal and impeller screw		
Service kit, EPDM (Std.)	★ 9611-92-2314	⊗ 9611-92-2534
Service kit, NBR	★ 9611-92-2315	⊗ 9611-92-2535
Service kit, FPM	★ 9611-92-2316	⊗ 9611-92-2536
Service kit, FEP	★ 9611-92-2317	⊗ 9611-92-2537
Service kit for double mechanical shaft seal C/SIC		
Service kit, EPDM (Std.)	▲ 9611-92-2318	⌘ 9611-92-2538
Service kit, NBR	▲ 9611-92-2319	⌘ 9611-92-2539
Service kit, FPM	▲ 9611-92-2320	⌘ 9611-92-2540
Service kit, FEP	▲ 9611-92-2321	⌘ 9611-92-2541
Service kit for double mechanical shaft seal and impeller screw		
Service kit, EPDM (Std.)	▲ 9611-92-2322	● 9611-92-2542
Service kit, NBR	▲ 9611-92-2323	● 9611-92-2543
Service kit, FPM	▲ 9611-92-2324	● 9611-92-2544
Service kit, FEP	▲ 9611-92-2325	● 9611-92-2545

Parts marked with □◆○★▲✧◇■%⊗● are included in the service kits.

Recommended Spare Parts: Service kits.

Shaft seal: See page 56

Conversion kit, single to flushed shaft seal EPDM C/SIC 9611-92-2042 = Pos. 10+40b+41+42+43+44+45

Conversion kit, single to double mechanical shaft seal EPDM C/SIC 9611-92-2175 = Pos.13+ 14+15+40a+41+42+44+50+51+52

Conversion kit, flushed to double mechanical shaft seal EPDM C/SIC 9611-92-2176 = Pos.13+ 14+40a+50+51+52

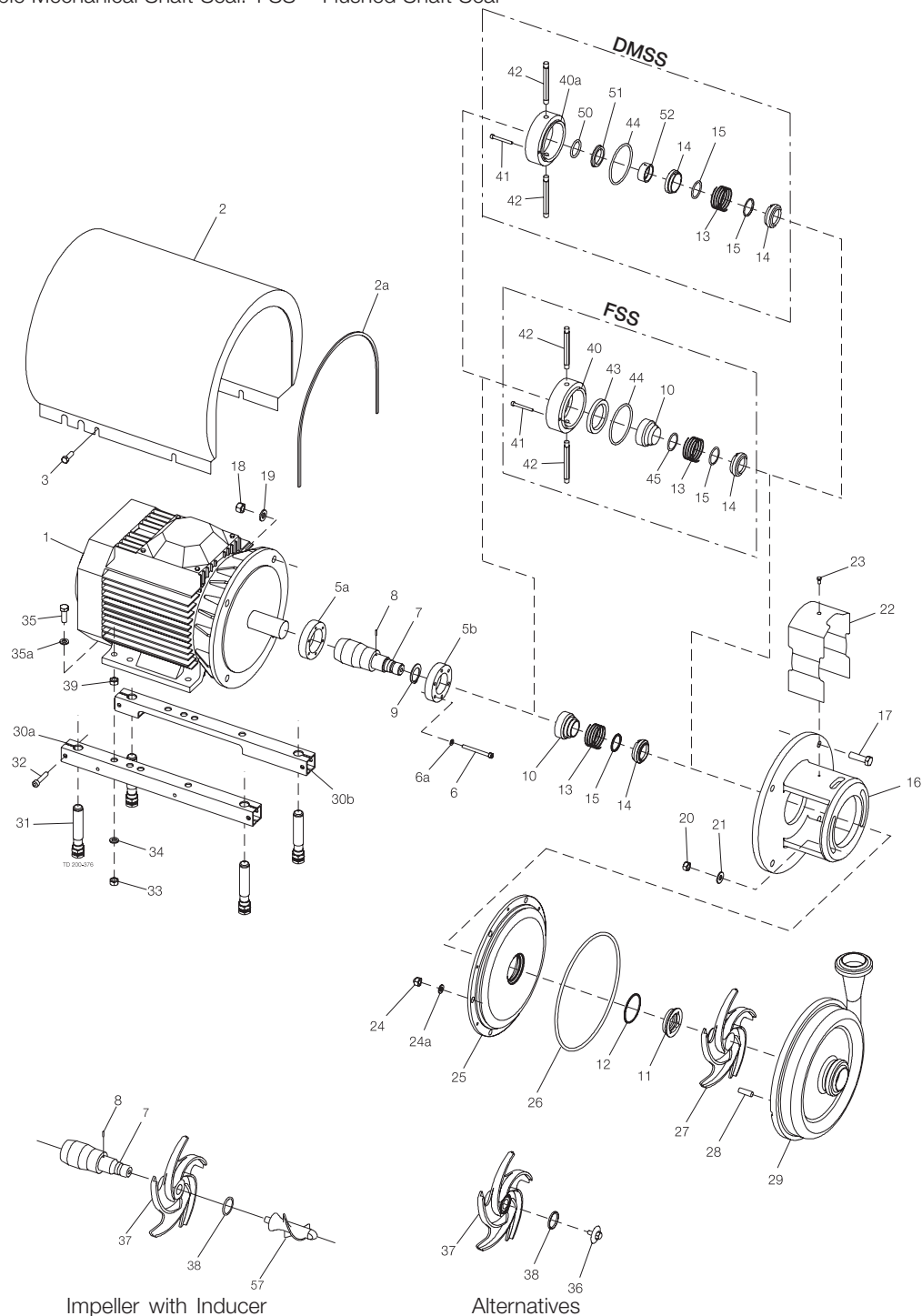
900010/2

7 Parts list and Service Kits

The drawing and the parts list include all items.

7.5 LKH-10 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal

DMSS = Double Mechanical Shaft Seal. FSS = Flushed Shaft Seal



7 Parts list and Service Kits

The drawing and the parts list include all items.

Parts list

Pos.	Qty	Denomination
1	1	Motor
2a	1	Edge list
2	1	Shroud complete
3	4	Screw
5a	1	Compression ring with thread
5b	1	Compression ring without thread
6	6	Screw
6a	6	Washer
7	1	Shaft
8	1	Connex pin
9	1	Retaining ring
10	1	Drive ring
16	1	Adaptor
17	4	Screw for adaptor
18	4	Nut for adaptor
19	4	Washer for adaptor
20	2	Nut
21	2	Washer
22	1	Safety guard
23	1	Screw for safety guard
24	6	Cap nut
24a	6	Washer
25	1	Back plate
26	1	O-ring
27	1	Impeller
28	6	Bolt
29	1	Pump casing
30a	1	Support bar, right
30b	1	Support bar, left
31	4	Leg
32	4	Screw
33	4	Nut
34	4	Spring washer
35	4	Screw
35a	4	Washer
36	1	Impeller screw
37	1	Impeller for impeller screw
38	1	O-ring
39	4	Nut
40	1	Seal housing
40a	1	Seal housing
41	2	Screw for seal housing
42	2	Tube
57	1	Inducer

Service kits

Denomination	C/SIC	SIC/SIC
Service kit for single shaft seal		
Service kit, EPDM (Std.)	□ 9611-92-2072	✦ 9611-92-2546
Service kit, NBR	□ 9611-92-2073	✦ 9611-92-2547
Service kit, FPM	□ 9611-92-2074	✦ 9611-92-2548
Service kit, FEP	□ 9611-92-2075	✦ 9611-92-2549
Service kit for single shaft seal and impeller screw		
Service kit, EPDM (Std.)	◆ 9611-92-2114	✦ 9611-92-2550
Service kit, NBR	◆ 9611-92-2115	✦ 9611-92-2551
Service kit, FPM	◆ 9611-92-2116	✦ 9611-92-2552
Service kit, FEP	◆ 9611-92-2117	✦ 9611-92-2553
Service kit for flushed shaft seal		
Service kit, EPDM (Std.)	○ 9611-92-2076	■ 9611-92-2554
Service kit, NBR	○ 9611-92-2077	■ 9611-92-2555
Service kit, FPM	○ 9611-92-2078	■ 9611-92-2556
Service kit, FEP	○ 9611-92-2079	■ 9611-92-2557
Service kit for flushed shaft seal and impeller screw		
Service kit, EPDM (Std.)	★ 9611-92-2118	✦ 9611-92-2558
Service kit, NBR	★ 9611-92-2119	✦ 9611-92-2559
Service kit, FPM	★ 9611-92-2120	✦ 9611-92-2560
Service kit, FEP	★ 9611-92-2121	✦ 9611-92-2561
Service kit for double mechanical shaft seal		
Service kit, EPDM (Std.)	△ 9611-92-2206	⌘ 9611-92-2562
Service kit, NBR	△ 9611-92-2207	⌘ 9611-92-2563
Service kit, FPM	△ 9611-92-2208	⌘ 9611-92-2564
Service kit, FEP	△ 9611-92-2209	⌘ 9611-92-2565
Service kit for double mechanical shaft seal and impeller screw		
Service kit, EPDM (Std.)	▲ 9611-92-2210	● 9611-92-2566
Service kit, NBR	▲ 9611-92-2211	● 9611-92-2567
Service kit, FPM	▲ 9611-92-2212	● 9611-92-2568
Service kit, FEP	▲ 9611-92-2213	● 9611-92-2569

Parts marked with □◆○★△▲✦◆⌘⌘● are included in the service kits. Recommended Spare Parts: Service kits. Shaft seal: See page 56

Conversion kit, single to flushed shaft seal EPDM C/SIC 9611-92-2042 = Pos. 10+40+41+42+43+44+45

Conversion kit single to double mechanical shaft seal EPDM C/SIC 9611-92-2175 = Pos.13+ 14+15+40a+41+42+44+50+51+52

Conversion kit single to double mechanical shaft seal EPDM SIC/SIC 9611-92-2326 = Pos. 13+14+15+40a+41+42+44+50+51+52

Conversion kit, flushed to double mechanical shaft seal EPDM C/SIC 9611-92-2176 = Pos.13+ 14+40a+50+51+52

Replace to inducer (For pump with impellerscrew) please order pos. 7+57+38

Replace to inducer (For pump without impellerscrew) please order pos. 7+57+37+38

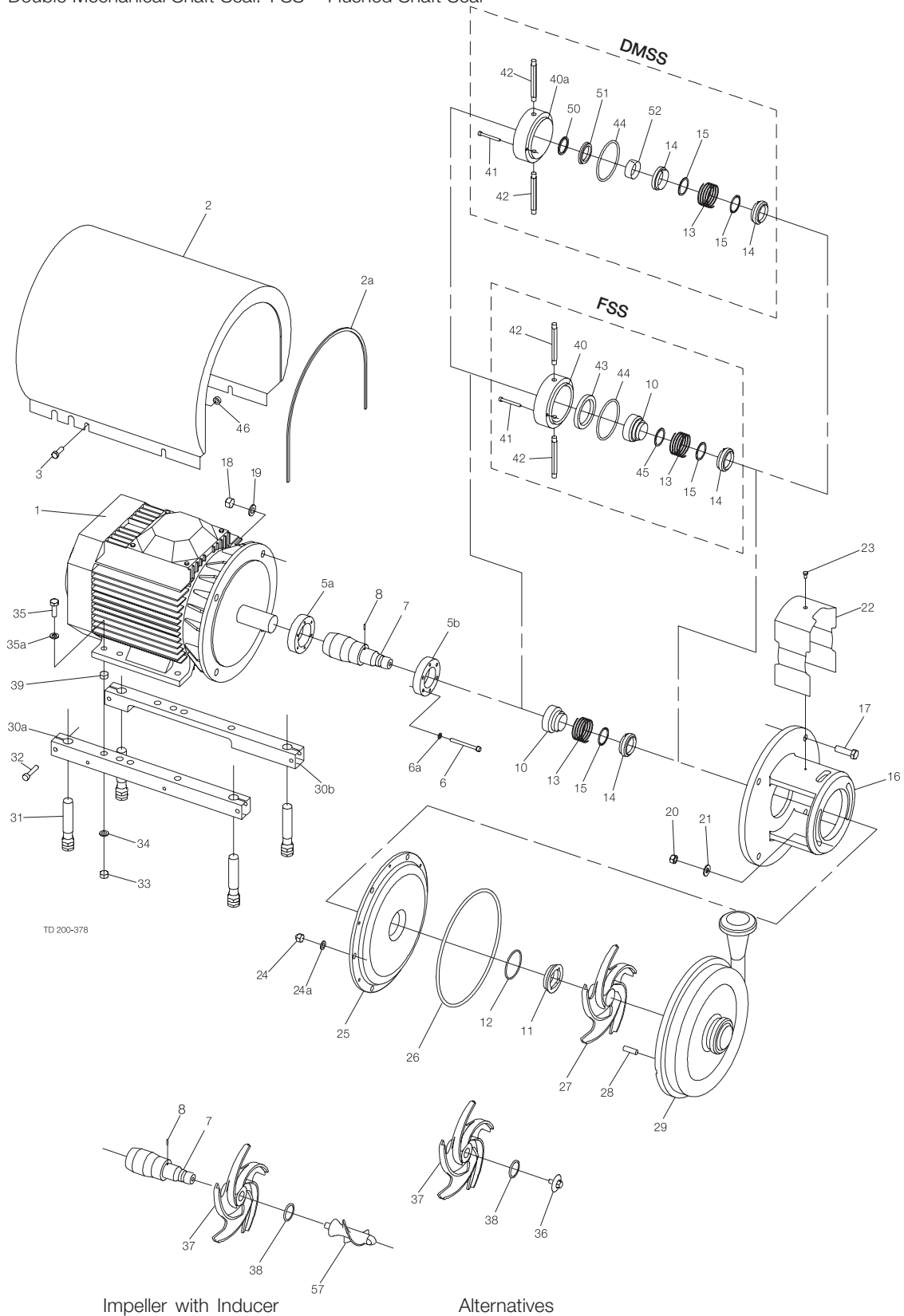
900009/3

7 Parts list and Service Kits

The drawing and the parts list include all items.

7.6 LKH-15 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal

DMSS = Double Mechanical Shaft Seal. FSS = Flushed Shaft Seal



7 Parts list and Service Kits

The drawing and the parts list include all items.

Parts list

Pos.	Qty	Denomination
1	1	Motor
2a	1	Edge list
2	1	Shroud complete
3	4	Screw
5a	1	Compression ring with thread
5b	1	Compression ring without thread
6a	6	Washer
6	6	Screw
7	1	Shaft
8	1	Connex pin
10	1	Drive ring
16	1	Adaptor
17	4	Screw for adaptor
18	4	Nut for adaptor
19	4	Washer for adaptor
20	2	Nut
21	2	Washer
22	1	Safety guard
23	1	Screw for safety guard
24	6	Cap nut
24a	6	Washer
25	1	Back plate
26	1	O-ring
27	1	Impeller
28	6	Bolt
29	1	Pump casing
30a	1	Support bar, right
30b	1	Support bar, left
31	4	Leg
32	4	Screw
33	4	Nut
34	4	Spring washer
35	4	Screw
35a	4	Washer
36	1	Impeller screw
37	1	Impeller for impeller screw
38	1	O-ring
39	4	Nut
40	1	Seal housing
40a	1	Seal housing
41	2	Screw for seal housing
42	2	Tube
46	4	Distance sleeve
57	1	Inducer

Service kits

Denomination	C/SIC	SIC/SIC
Service kit for single shaft seal		
Service kit, EPDM (Std.)	□ 9611-92-2072	✦ 9611-92-2546
Service kit, NBR	□ 9611-92-2073	✦ 9611-92-2547
Service kit, FPM	□ 9611-92-2074	✦ 9611-92-2548
Service kit, FEP	□ 9611-92-2075	✦ 9611-92-2549
Service kit for single shaft seal and impeller screw		
Service kit, EPDM (Std.)	◆ 9611-92-2114	✦ 9611-92-2550
Service kit, NBR	◆ 9611-92-2115	✦ 9611-92-2551
Service kit, FPM	◆ 9611-92-2116	✦ 9611-92-2552
Service kit, FEP	◆ 9611-92-2117	✦ 9611-92-2553
Service kit for flushed shaft seal		
Service kit, EPDM (Std.)	○ 9611-92-2076	■ 9611-92-2554
Service kit, NBR	○ 9611-92-2077	■ 9611-92-2555
Service kit, FPM	○ 9611-92-2078	■ 9611-92-2556
Service kit, FEP	○ 9611-92-2079	■ 9611-92-2557
Service kit for flushed shaft seal and impeller screw		
Service kit, EPDM (Std.)	★ 9611-92-2118	✦ 9611-92-2558
Service kit, NBR	★ 9611-92-2119	✦ 9611-92-2559
Service kit, FPM	★ 9611-92-2120	✦ 9611-92-2560
Service kit, FEP	★ 9611-92-2121	✦ 9611-92-2561
Service kit for double mechanical shaft seal		
Service kit, EPDM (Std.)	▲ 9611-92-2206	⌘ 9611-92-2562
Service kit, NBR	▲ 9611-92-2207	⌘ 9611-92-2563
Service kit, FPM	▲ 9611-92-2208	⌘ 9611-92-2564
Service kit, FEP	▲ 9611-92-2209	⌘ 9611-92-2565
Service kit for double mechanical shaft seal and impeller screw		
Service kit, EPDM (Std.)	▲ 9611-92-2210	● 9611-92-2566
Service kit, NBR	▲ 9611-92-2211	● 9611-92-2567
Service kit, FPM	▲ 9611-92-2212	● 9611-92-2568
Service kit, FEP	▲ 9611-92-2213	● 9611-92-2569

Parts marked with □◆○★▲✦✧◆■⌘● are included in the service kits.

Recommended Spare Parts: Service kits.

Shaft seal: See page 56

Conversion kit, single to flushed shaft seal EPDM C/SIC 9611-92-2042 = Pos. 10+40+41+42+43+44+45

Conversion kit single to double mechanical shaft seal EPDM C/SIC 9611-92-2175 = Pos.13+ 14+15+40a+41+42+44+50+51+52

Conversion kit single to double mechanical shaft seal EPDM SIC/SIC 9611-92-2326 = Pos.13+ 14+15+40a+41+42+44+50+51+52

Conversion kit, flushed to double mechanical shaft seal EPDM C/SIC 9611-92-2176 = Pos. 13+14+40a+50+51+52

Replace to inducer (for pump with impellerscrew) please order pos. 7+57+38

Replace to inducer (for pump without impellerscrew) please order pos. 7+57+37+38

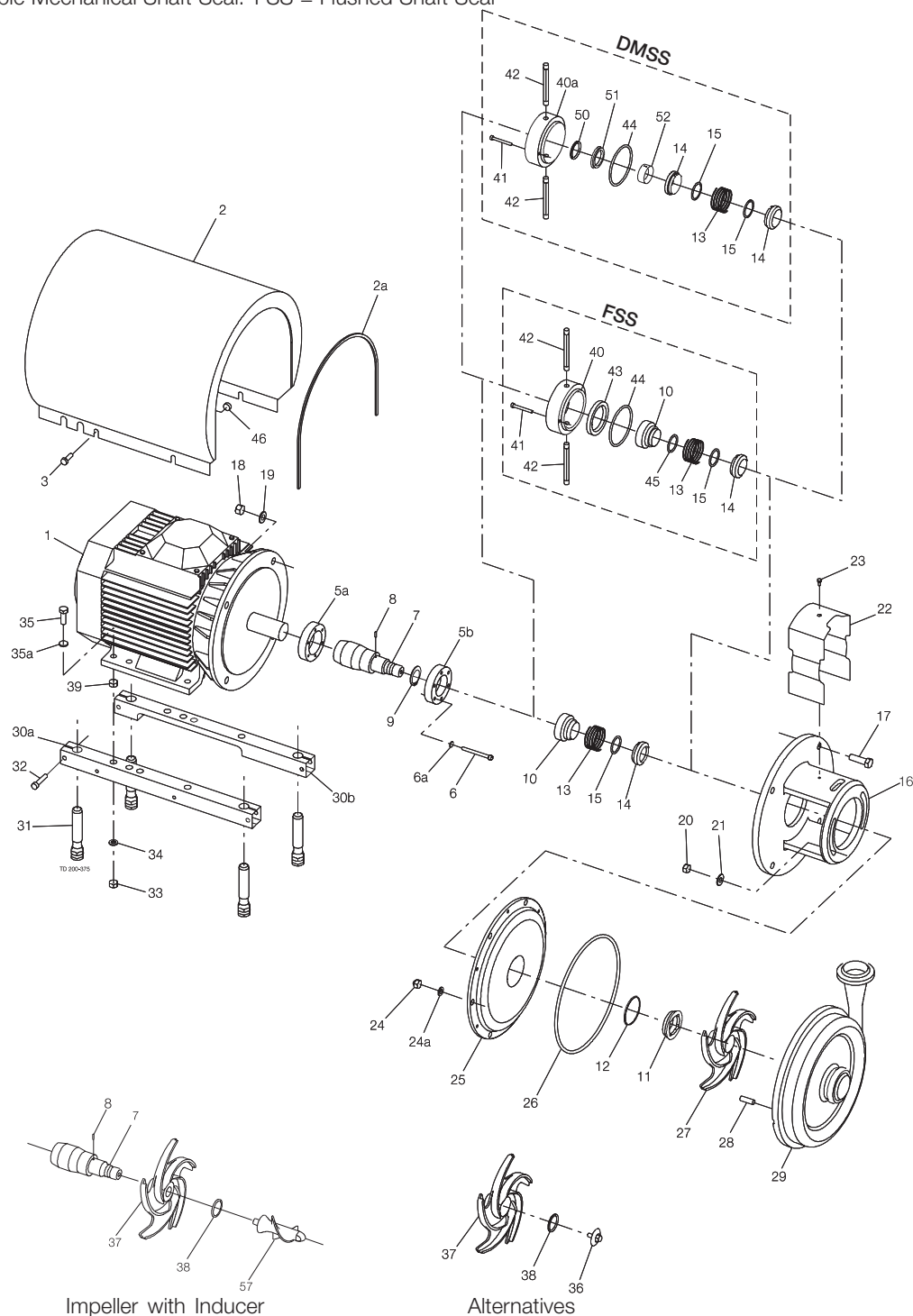
900010/2

7 Parts list and Service Kits

The drawing and the parts list include all items.

7.7 LKH-20 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal

DMSS = Double Mechanical Shaft Seal. FSS = Flushed Shaft Seal



7 Parts list and Service Kits

The drawing and the parts list include all items.

Parts list

Pos.	Qty	Denomination
1	1	Motor
2	1	Shroud complete
2a	1	Edge list
3	4	Screw
5a	1	Compression ring with thread
5b	1	Compression ring without thread
6	6	Screw
6a	6	Washer
7	1	Shaft
8	1	Connex pin
9	1	Retaining ring
10	1	Drive ring
16	1	Adaptor
17	4	Screw for adaptor
18	4	Nut for adaptor
19	4	Washer for adaptor
20	2	Nut
21	2	Washer
22	1	Safety guard
23	1	Screw for safety guard
24	6	Cap nut
24a	6	Washer
25	1	Back plate
26	1	O-ring
27	1	Impeller
28	6	Bolt
29	1	Pump casing
30a	1	Support bar, right
30b	1	Support bar, left
31	4	Leg
32	4	Screw
33	4	Nut
34	4	Spring washer
35	4	Screw
35a	4	Washer
36	1	Impeller screw
37	1	Impeller for impeller screw
38	1	O-ring EPDM
39	4	Nut
40	1	Seal housing
40a	1	Seal housing
41	2	Screw for seal housing
42	2	Tube
46	4	Distance sleeve
57	1	Inducer

Service kits

Denomination	C/SIC	SIC/SIC
Service kit for single shaft seal		
Service kit, EPDM (Std.)	□ 9611-92-2080	✦ 9611-92-2570
Service kit, NBR	□ 9611-92-2081	✦ 9611-92-2571
Service kit, FPM	□ 9611-92-2082	✦ 9611-92-2572
Service kit, FEP	□ 9611-92-2083	✦ 9611-92-2573
Service kit for single shaft seal and impeller screw		
Service kit, EPDM (Std.)	◆ 9611-92-2122	✦ 9611-92-2574
Service kit, NBR	◆ 9611-92-2123	✦ 9611-92-2575
Service kit, FPM	◆ 9611-92-2124	✦ 9611-92-2576
Service kit, FEP	◆ 9611-92-2125	✦ 9611-92-2577
Service kit for flushed shaft seal		
Service kit, EPDM (Std.)	○ 9611-92-2084	■ 9611-92-2578
Service kit, NBR	○ 9611-92-2085	■ 9611-92-2579
Service kit, FPM	○ 9611-92-2086	■ 9611-92-2580
Service kit, FEP	○ 9611-92-2087	■ 9611-92-2581
Service kit for flushed shaft seal and impeller screw		
Service kit, EPDM (Std.)	★ 9611-92-2126	✦ 9611-92-2582
Service kit, NBR	★ 9611-92-2127	✦ 9611-92-2583
Service kit, FPM	★ 9611-92-2128	✦ 9611-92-2584
Service kit, FEP	★ 9611-92-2129	✦ 9611-92-2585
Service kit for double mechanical shaft seal		
Service kit, EPDM (Std.)	△ 9611-92-2214	⌘ 9611-92-2586
Service kit, NBR	△ 9611-92-2215	⌘ 9611-92-2587
Service kit, FPM	△ 9611-92-2216	⌘ 9611-92-2588
Service kit, FEP	△ 9611-92-2217	⌘ 9611-92-2589
Service kit for double mechanical shaft seal and impeller screw		
Service kit, EPDM (Std.)	▲ 9611-92-2218	● 9611-92-2590
Service kit, NBR	▲ 9611-92-2219	● 9611-92-2591
Service kit, FPM	▲ 9611-92-2220	● 9611-92-2592
Service kit, FEP	▲ 9611-92-2221	● 9611-92-2593

Parts marked with □◆○★▲✦✧◆■⌘● are included in the service kits.

Recommended Spare Parts: Service kits.

Shaft seal: See page 56

Conversion kit, single to flushed shaft seal EPDM C/SIC 9611-92-2042 = Pos. 10+40+41+42+43+44+45

Conversion kit single to double mechanical shaft seal EPDM C/SIC 9611-92-2175 = Pos. 13+14+15+40a+41+42+44+50+51+52

Conversion kit single to double mechanical shaft seal EPDM SIC/SIC 9611-92-2326 = Pos.13+ 14+15+40a+41+42+44+50+51+52

Conversion kit, flushed to double mechanical shaft seal EPDM C/SIC 9611-92-2176 = Pos.13+ 14+40a+50+51+52

Replace to inducer (For pump with impeller screw) please order pos. 7+57+38

Replace to inducer (For pump without impeller screw) please order pos. 7+57+37+38.

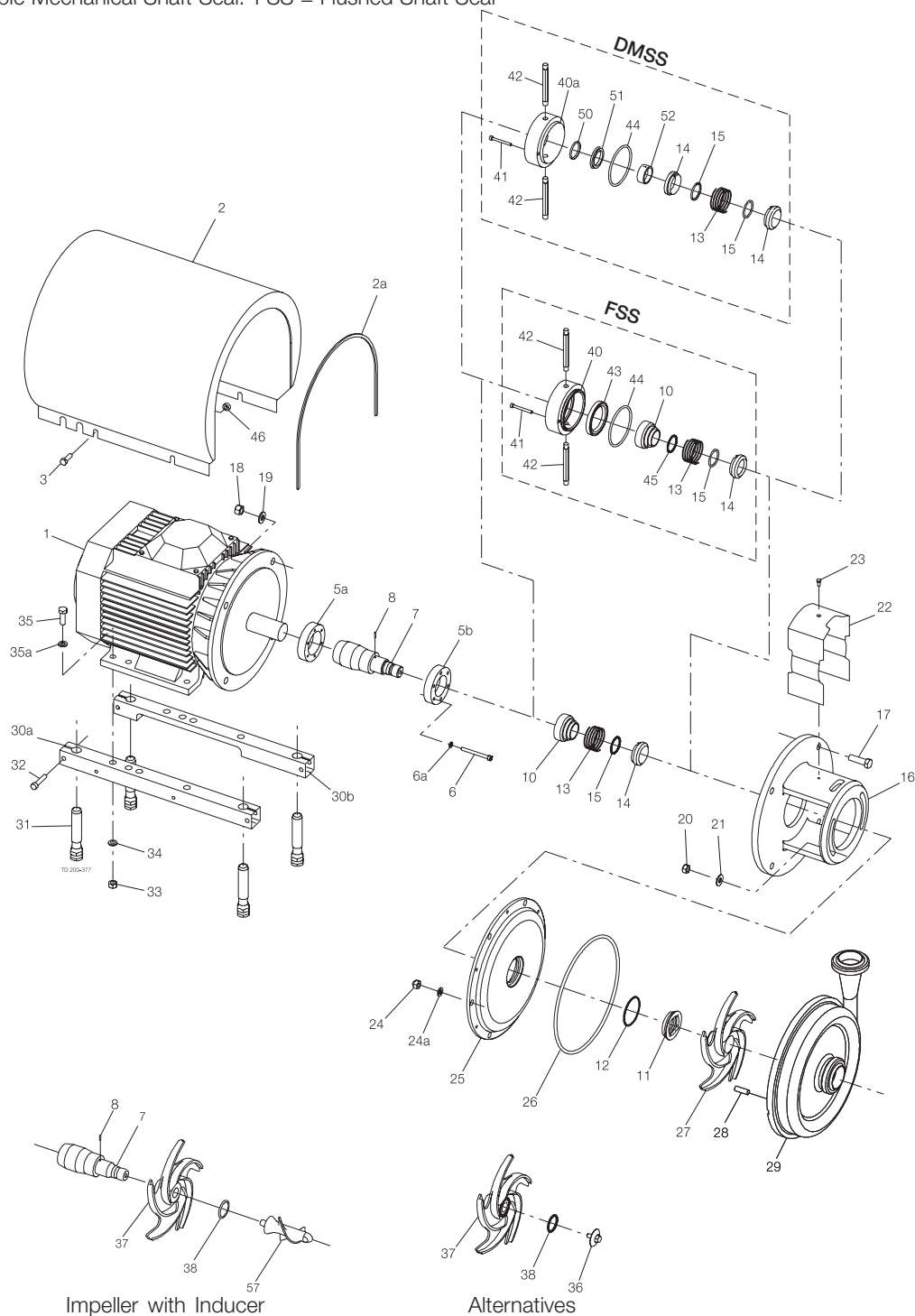
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7 Parts list and Service Kits

The drawing and the parts list include all items.

7.8 LKH-25 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal

DMSS = Double Mechanical Shaft Seal. FSS = Flushed Shaft Seal



7 Parts list and Service Kits

The drawing and the parts list include all items.

Parts list

Pos.	Qty	Denomination
1	1	Motor
2	1	Shroud complete
2a	1	Edge list
3	4	Screw
5a	1	Compression ring with thread
5b	1	Compression ring without thread
6	6	Screw
6a	6	Washer
7	1	Shaft
8	1	Connex pin
10	1	Drive ring
16	1	Adaptor
17	4	Screw for adaptor
18	4	Nut for adaptor
19	4	Washer for adaptor
20	2	Nut
21	2	Washer
22	1	Safety guard
23	1	Screw for safety guard
24	6	Cap nut
24a	6	Washer
25	1	Back plate
26	1	O-ring
27	1	Impeller
28	6	Bolt
29	1	Pump casing
30a	1	Support bar, right
30b	1	Support bar, left
31	4	Leg
32	4	Screw
33	4	Nut
34	4	Spring washer
35	4	Screw
35a	4	Washer
36	1	Impeller screw
37	1	Impeller for impeller screw
38	1	O-ring
40	1	Seal housing
40a	1	Seal housing
41	2	Screw for seal housing
42	2	Tube
46	4	Distance sleeve
57	1	Inducer

Service kits

Denomination	C/SIC	SIC/SIC
Service kit for single shaft seal		
Service kit, EPDM (Std.)	□ 9611-92-2178	✦ 9611-92-2594
Service kit, NBR	□ 9611-92-2179	✦ 9611-92-2595
Service kit, FPM	□ 9611-92-2180	✦ 9611-92-2596
Service kit, FEP	□ 9611-92-2181	✦ 9611-92-2597
Service kit for single shaft seal and impeller screw		
Service kit, EPDM (Std.)	◆ 9611-92-2182	✦ 9611-92-2598
Service kit, NBR	◆ 9611-92-2183	✦ 9611-92-2599
Service kit, FPM	◆ 9611-92-2184	✦ 9611-92-2600
Service kit, FEP	◆ 9611-92-2185	✦ 9611-92-2601
Service kit for flushed shaft seal		
Service kit, EPDM (Std.)	○ 9611-92-2186	■ 9611-92-2602
Service kit, NBR	○ 9611-92-2187	■ 9611-92-2603
Service kit, FPM	○ 9611-92-2188	■ 9611-92-2604
Service kit, FEP	○ 9611-92-2189	■ 9611-92-2605
Service kit for flushed shaft seal and impeller screw		
Service kit, EPDM (Std.)	★ 9611-92-2190	✦ 9611-92-2606
Service kit, NBR	★ 9611-92-2191	✦ 9611-92-2607
Service kit, FPM	★ 9611-92-2192	✦ 9611-92-2608
Service kit, FEP	★ 9611-92-2193	✦ 9611-92-2609
Service kit for double mechanical shaft seal		
Service kit, EPDM (Std.)	▲ 9611-92-2222	⌘ 9611-92-2610
Service kit, NBR	▲ 9611-92-2223	⌘ 9611-92-2611
Service kit, FPM	▲ 9611-92-2224	⌘ 9611-92-2612
Service kit, FEP	▲ 9611-92-2225	⌘ 9611-92-2613
Service kit for double mechanical shaft seal and impeller screw		
Service kit, EPDM (Std.)	▲ 9611-92-2226	● 9611-92-2614
Service kit, NBR	▲ 9611-92-2227	● 9611-92-2615
Service kit, FPM	▲ 9611-92-2228	● 9611-92-2616
Service kit, FEP	▲ 9611-92-2229	● 9611-92-2617

Parts marked with □◆○★▲✦✧■⌘● are included in the service kits.

Recommended Spare Parts: Service kits.

Shaft seal: See page 56

Conversion kit, single to flushed shaft seal EPDM C/SIC 9611-92-2891 = Pos. 10+40+41+42+43+44+45

Conversion kit single to double mechanical shaft seal EPDM C/SIC 9611-92-2175 = Pos. 13+14+15+40a+41+42+44+50+51+52

Conversion kit single to double mechanical shaft seal EPDM SIC/SIC 9611-92-2326 = Pos. 13+14+15+40a+41+42+44+50+51+52

Conversion kit, flushed to double mechanical shaft seal EPDM C/SIC 9611-92-2176 = Pos.13+ 14+40a+50+51+52

Replace to inducer (for pump with impellerscrew) please order pos. 7+57+38

Replace to inducer (for pump without impellerscrew) please order pos. 7+57+37+38

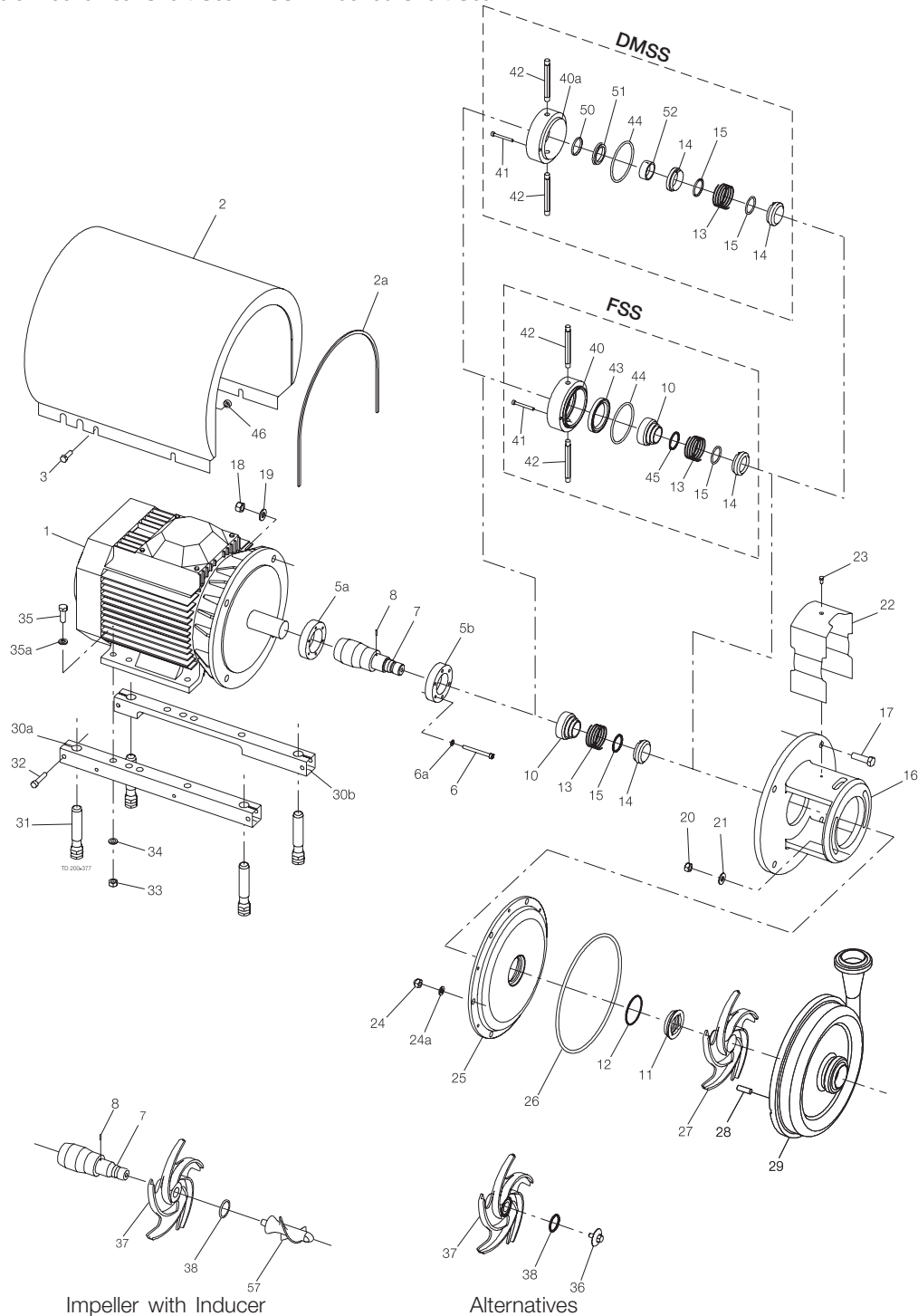
900012/3

7 Parts list and Service Kits

The drawing and the parts list include all items.

7.9 LKH-35 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal

DMSS = Double Mechanical Shaft Seal. FSS = Flushed Shaft Seal



7 Parts list and Service Kits

The drawing and the parts list include all items.

Parts list

Pos.	Qty	Denomination
1	1	Motor
2	1	Shroud complete
2a	1	Edge list
3	4	Screw
5a	1	Compression ring with thread
5b	1	Compression ring without thread
6	6	Screw
6a	6	Washer
7	1	Shaft
8	1	Connex pin
10	1	Drive ring
16	1	Adaptor
17	4	Screw for adaptor
18	4	Nut for adaptor
19	4	Washer for adaptor
20	2	Nut
21	2	Washer
22	1	Safety guard
23	1	Screw for safety guard
24	6	Cap nut
24a	6	Washer
25	1	Back plate
26	1	O-ring
27	1	Impeller
28	6	Bolt
29	1	Pump casing
30a	1	Support bar, right
30b	1	Support bar, left
31	4	Leg
32	4	Screw
33	4	Nut
34	4	Spring washer
35	4	Screw
35a	4	Washer
36	1	Impeller screw
37	1	Impeller for impeller screw
38	1	O-ring
40	1	Seal housing
40a	1	Seal housing
41	2	Screw for seal housing
42	2	Tube
46	4	Distance sleeve
57	1	Inducer

Service kits

Denomination	C/SIC	SIC/SIC
Service kit for single shaft seal		
Service kit, EPDM (Std.)	□ 9611-92-2178	✦ 9611-92-2594
Service kit, NBR	□ 9611-92-2179	✦ 9611-92-2595
Service kit, FPM	□ 9611-92-2180	✦ 9611-92-2596
Service kit, FEP	□ 9611-92-2181	✦ 9611-92-2597
Service kit for single shaft seal and impeller screw		
Service kit, EPDM (Std.)	◆ 9611-92-2182	✦ 9611-92-2598
Service kit, NBR	◆ 9611-92-2183	✦ 9611-92-2599
Service kit, FPM	◆ 9611-92-2184	✦ 9611-92-2600
Service kit, FEP	◆ 9611-92-2185	✦ 9611-92-2601
Service kit for flushed shaft seal		
Service kit, EPDM (Std.)	○ 9611-92-2186	■ 9611-92-2602
Service kit, NBR	○ 9611-92-2187	■ 9611-92-2603
Service kit, FPM	○ 9611-92-2188	■ 9611-92-2604
Service kit, FEP	○ 9611-92-2189	■ 9611-92-2605
Service kit for flushed shaft seal and impeller screw		
Service kit, EPDM (Std.)	★ 9611-92-2190	✦ 9611-92-2606
Service kit, NBR	★ 9611-92-2191	✦ 9611-92-2607
Service kit, FPM	★ 9611-92-2192	✦ 9611-92-2608
Service kit, FEP	★ 9611-92-2193	✦ 9611-92-2609
Service kit for double mechanical shaft seal		
Service kit, EPDM (Std.)	▲ 9611-92-2222	⌘ 9611-92-2610
Service kit, NBR	▲ 9611-92-2223	⌘ 9611-92-2611
Service kit, FPM	▲ 9611-92-2224	⌘ 9611-92-2612
Service kit, FEP	▲ 9611-92-2225	⌘ 9611-92-2613
Service kit for double mechanical shaft seal and impeller screw		
Service kit, EPDM (Std.)	▲ 9611-92-2226	● 9611-92-2614
Service kit, NBR	▲ 9611-92-2227	● 9611-92-2615
Service kit, FPM	▲ 9611-92-2228	● 9611-92-2616
Service kit, FEP	▲ 9611-92-2229	● 9611-92-2617

Parts marked with □◆○★▲✦✧■⌘● are included in the service kits.

Recommended Spare Parts: Service kits.

Shaft seal: See page 56

Conversion kit, single to flushed shaft seal EPDM C/SIC 9611-92-2891 = Pos. 10+40+41+42+43+44+45

Conversion kit, single to double mechanical shaft seal EPDM C/SIC 9611-92-2175 = Pos. 13+14+15+40a+41+42+44+50+51+52

Conversion kit, single to double mechanical shaft seal EPDM SIC/SIC 9611-92-2326 = Pos. 13+14+15+40a+41+42+44+50+51+52

Conversion kit, flushed to double mechanical shaft seal EPDM C/SIC 9611-92-2176 = Pos. 13+14+40a+50+51+52

Replace to inducer (for pump with impellerscrew) please order pos. 7+57+38

Replace to inducer (for pump without impellerscrew) please order pos. 7+57+37+38

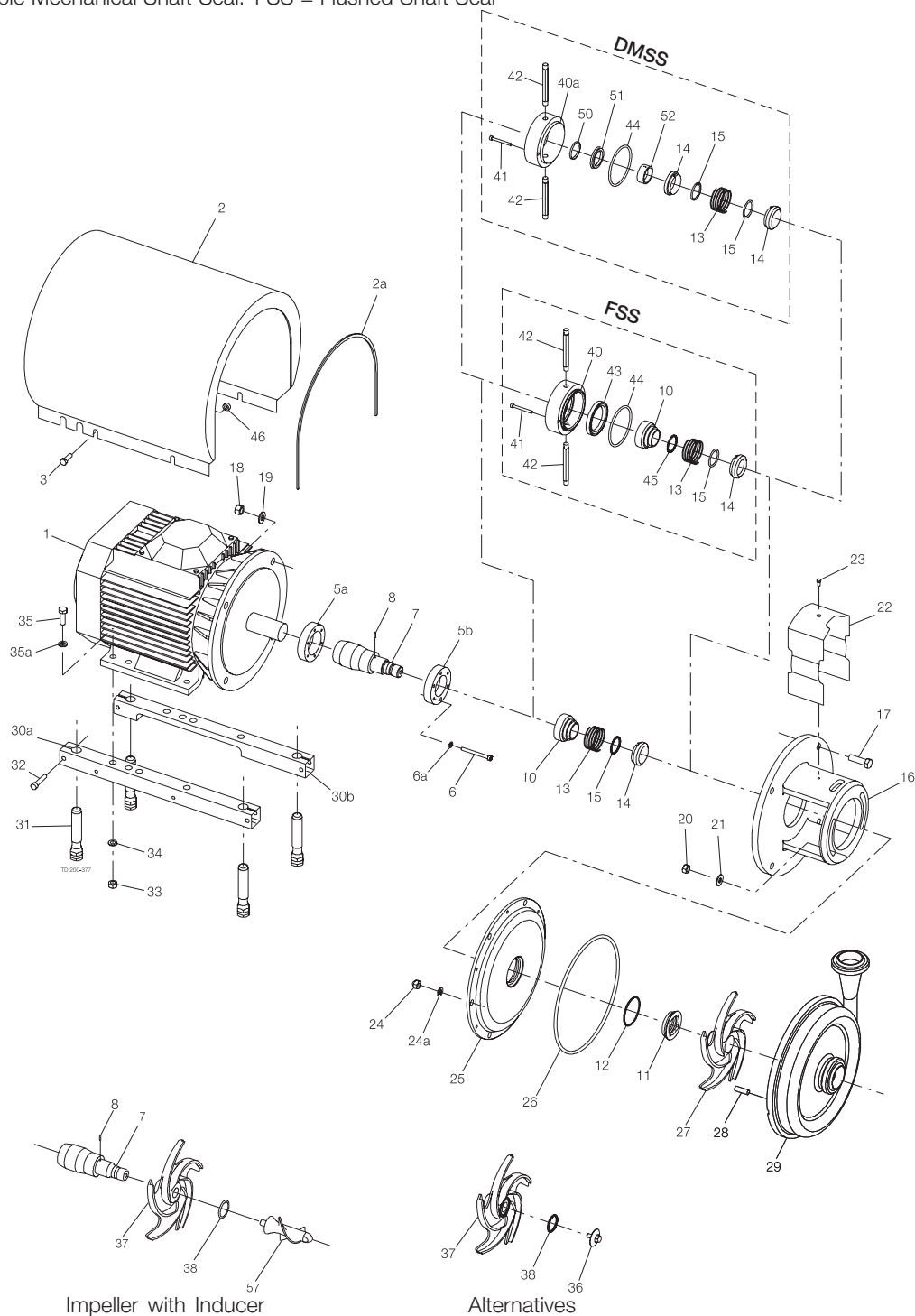
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7 Parts list and Service Kits

The drawing and the parts list include all items.

7.10 LKH-40 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal

DMSS = Double Mechanical Shaft Seal. FSS = Flushed Shaft Seal



7 Parts list and Service Kits

The drawing and the parts list include all items.

Parts list

Pos.	Qty	Denomination
1	1	Motor
2	1	Shroud
2a	1	Edge list
3	4	Screw
5a	1	Compression ring with thread
5b	1	Compression ring without thread
6	6	Screw
6a	6	Washer
7	1	Shaft
8	1	Connex pin
10	1	Drive ring
16	1	Adaptor
17	4	Screw for adaptor
18	4	Nut for adaptor
19	4	Washer for adaptor
20	2	Nut
21	2	Washer
22	1	Safety guard
23	1	Screw for safety guard
24	6	Cap nut
24a	6	Washer
25	1	Backplate
26	1	O-ring
27	1	Impeller
28	6	Bolt
29	1	Pump casing
30a	1	Support bar, right
30b	1	Support bar, left
31	4	Leg
32	4	Screw
33	4	Nut
34	4	Spring washer
35	4	Screw
35a	4	Washer
36	1	Impeller screw
37	1	Impeller for impeller screw
38	1	O-ring
40a	1	Seal housing
46	4	Distance sleeve
57	1	Inducer

Service kits

Denomination	C/SIC	SIC/SIC
Service kits for single shaft seal		
Service kit, EPDM (Std.)	□ 9611-92-2088	✦ 9611-92-2619
Service kit, NBR	□ 9611-92-2089	✦ 9611-92-2620
Service kit, FPM	□ 9611-92-2090	✦ 9611-92-2621
Service kit, FEP	□ 9611-92-2091	✦ 9611-92-2622
Service kits for single shaft seal and impeller screw		
Service kit, EPDM (Std.)	◆ 9611-92-2130	✦ 9611-92-2623
Service kit, NBR	◆ 9611-92-2131	✦ 9611-92-2624
Service kit, FPM	◆ 9611-92-2132	✦ 9611-92-2625
Service kit, FEP	◆ 9611-92-2133	✦ 9611-92-2626
Service kits for flushed shaft seal		
Service kit, EPDM (Std.)	○ 9611-92-2092	■ 9611-92-2627
Service kit, NBR	○ 9611-92-2093	■ 9611-92-2628
Service kit, FPM	○ 9611-92-2094	■ 9611-92-2629
Service kit, FEP	○ 9611-92-2095	■ 9611-92-2630
Service kits for flushed shaft seal and impeller screw		
Service kit, EPDM (Std.)	★ 9611-92-2134	✦ 9611-92-2631
Service kit, NBR	★ 9611-92-2135	✦ 9611-92-2632
Service kit, FPM	★ 9611-92-2136	✦ 9611-92-2633
Service kit, FEP	★ 9611-92-2137	✦ 9611-92-2634
Service kits for double mechanical shaft seal		
Service kit, EPDM (Std.)	△ 9611-92-2230	⌘ 9611-92-2635
Service kit, NBR	△ 9611-92-2231	⌘ 9611-92-2636
Service kit, FPM	△ 9611-92-2232	⌘ 9611-92-2637
Service kit, FEP	△ 9611-92-2233	⌘ 9611-92-2638
Service kits for double mechanical shaft seal and impeller screw		
Service kit, EPDM (Std.)	▲ 9611-92-2234	● 9611-92-2639
Service kit, NBR	▲ 9611-92-2235	● 9611-92-2640
Service kit, FPM	▲ 9611-92-2236	● 9611-92-2641
Service kit, FEP	▲ 9611-92-2237	● 9611-92-2642

Parts marked with □◆○★▲△✦✦■⌘● are included in the service kits. Recommended Spare Parts: Service kits. Shaft seal: See page 56

Conversion kit, single to flushed shaft seal EPDM C/SIC 9611-92-2891 = Pos. 10+40+41+42+43+44+45

Conversion kit, single to double mechanical shaft seal EPDM C/SIC 9611-92-2175 = Pos. 13+14+15+40a+41+42+44+ 50 +51+52

Conversion kit, single to double mechanical shaft seal EPDM SIC/SIC 9611-92-2326 = Pos.13+ 14+15+40a+41+42+44+ 50 +51+52

Conversion kit, flushed to double mechanical shaft seal EPDM C/SIC 9611-92-2176 = Pos. 13+14+40a+50+51+52

Replace to inducer (for pump with impellerscrew) please order pos. 7+57+38

Replace to inducer (for pump without impellerscrew) please order pos. 7+57+37+38

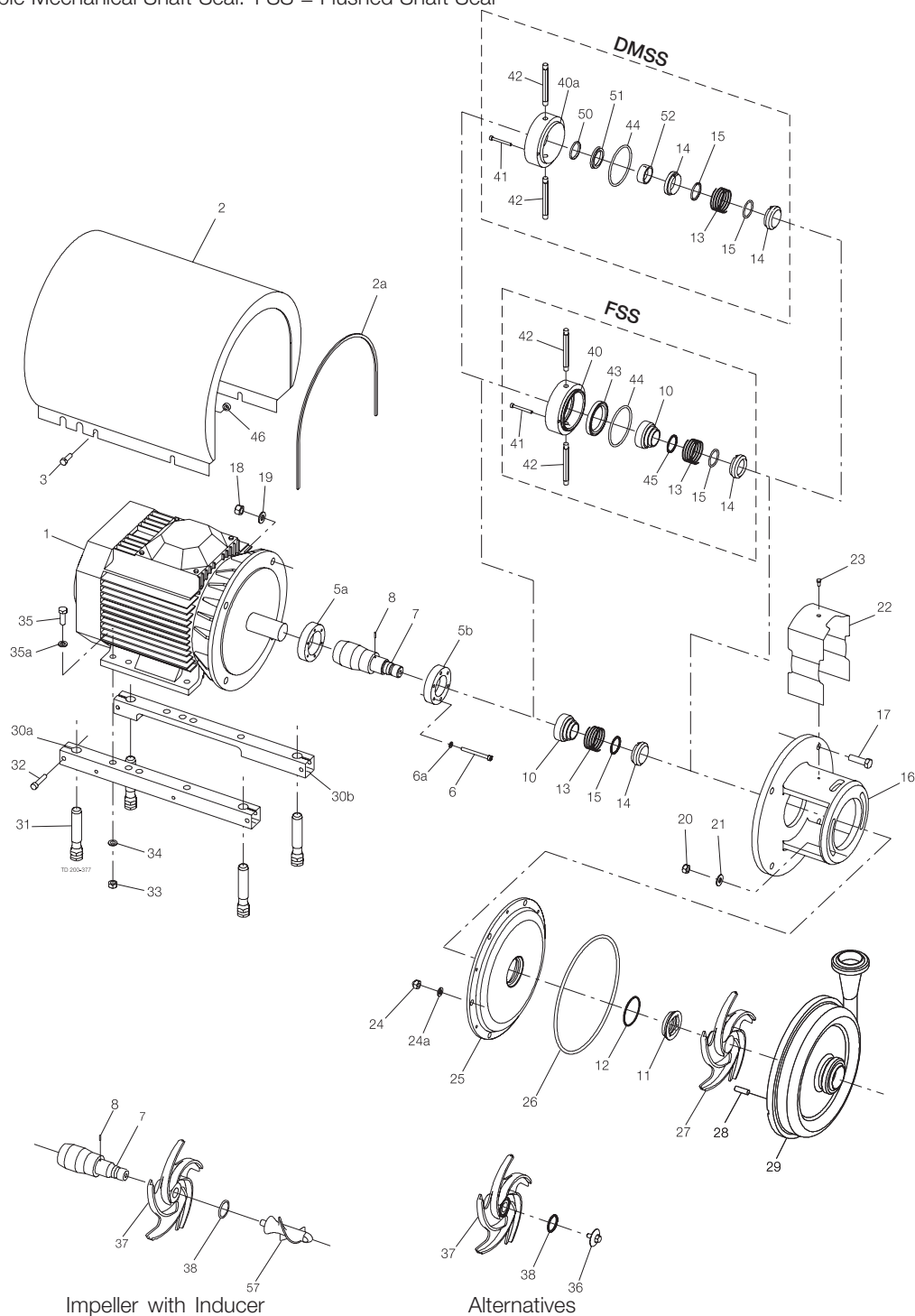
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7 Parts list and Service Kits

The drawing and the parts list include all items.

7.11 LKH-45 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal

DMSS = Double Mechanical Shaft Seal. FSS = Flushed Shaft Seal



7 Parts list and Service Kits

The drawing and the parts list include all items.

Parts list

Pos.	Qty	Denomination
1	1	Motor
2	1	Shroud complete
2a	1	Edge list
3	4	Screw
5a	1	Compression ring with thread
5b	1	Compression ring without thread
6	6	Screw
6a	6	washer
7	1	Shaft
8	1	Connex pin
10	1	Drive ring
16	1	Adapter
17	4	Screw for adapter
18	4	Nut for adapter
19	4	washer for adapter
20	2	Nut
21	2	washer
22	1	Safety guard
23	1	Screw for safety guard
24	6	Cap nut
24a	6	washer
25	1	Back plate
26	1	O-ring
27	1	Impeller
28	6	Bolt
29	1	Pump casing
30a	1	Support bar, right
30b	1	Support bar, Left
31	4	Leg
32	4	Screw
33	4	Nut
34	4	Spring washer
35	4	Screw
35a	4	washer
36	1	Impeller screw
37	1	Impeller for impeller screw
38	1	O-ring
40	1	Seal housing
41	2	Screw for seal housing
42	2	Tube
46	4	Distance sleeve
57	1	Inducer

□♦○★▲
✧✧■✧●●

◆★▲✧●●

Service kits

Denomination	C/SIC	SIC/SIC
Service kit for single shaft seal		
Service kit, EPDM (std)	□ 9611-92-2178	✧ 9611-92-2594
Service kit, NBR	□ 9611-92-2179	✧ 9611-92-2595
Service kit, FPM.....	□ 9611-92-2180	✧ 9611-92-2596
Service kit, FEP	□ 9611-92-2181	✧ 9611-92-2597
Service kit for single shaft seal and impeller screw		
Service kit, EPDM (std)	◆ 9611-92-2182	✧ 9611-92-2598
Service kit, NBR	◆ 9611-92-2179	✧ 9611-92-2595
Service kit, FPM.....	◆ 9611-92-2180	✧ 9611-92-2596
Service kit, FPM.....	◆ 9611-92-2181	✧ 9611-92-2597
Service kit for flushed shaft seal		
Service kit, EPDM (std)	○ 9611-92-2186	■ 9611-92-2602
Service kit, NBR	○ 9611-92-2187	■ 9611-92-2603
Service kit, FPM.....	○ 9611-92-2188	■ 9611-92-2604
Service kit, FEP	○ 9611-92-2189	■ 9611-92-2605
Service kit for flushed shaft seal and impeller screw		
Service kit, EPDM (std)	★ 9611-92-2190	✧ 9611-92-2606
Service kit, NBR	★ 9611-92-2191	✧ 9611-92-2607
Service kit, FPM	★ 9611-92-2192	✧ 9611-92-2608
Service kit, FEP	★ 9611-92-2193	✧ 9611-92-2609
Service kit for double mechanical shaft seal		
Service kit, EPDM (std)	▲ 9611-92-2222	⌘ 9611-92-2610
Service kit, NBR	▲ 9611-92-2223	⌘ 9611-92-2611
Service kit, FPM.....	▲ 9611-92-2224	⌘ 9611-92-2612
Service kit, FEP	▲ 9611-92-2225	⌘ 9611-92-2613
Service kit for double mechanical shaft seal and impeller screw		
Service kit, EPDM (std)	▲ 9611-92-2226	● 9611-92-2614
Service kit, NBR	▲ 9611-92-2227	● 9611-92-2615
Service kit, FPM.....	▲ 9611-92-2228	● 9611-92-2616
Service kit, FEP	▲ 9611-92-2229	● 9611-92-2617

Parts marked with □♦○★▲✧✧■✧●● are included in the service kits.

Recommended Spare Parts: Service kits.

Shaft seal: See page 56

Conversion kit, single to flushed shaft seal EPDM C/SIC 9611-92-2891 = Pos. 10+40+41+42+43+44+45

Conversion kit, single to double mechanical shaft seal EPDM C/SIC 9611-92-2175 = Pos.13+ 14+15+40a+41+42+44+50+51+52

Conversion kit, single to double mechanical shaft seal EPDM SIC/SIC 9611-92-2326 = Pos. 13+14+15+40a+41+42+44+50+51+52

Conversion kit, flushed to double mechanical shaft seal EPDM C/SIC 9611-92-2176 = Pos. 13+14+40a+50+51+52

Replace to inducer (for pump with impellerscrew) please order pos. 7+57+38

Replace to inducer (for pump without impellerscrew) please order pos. 7+57+37+38

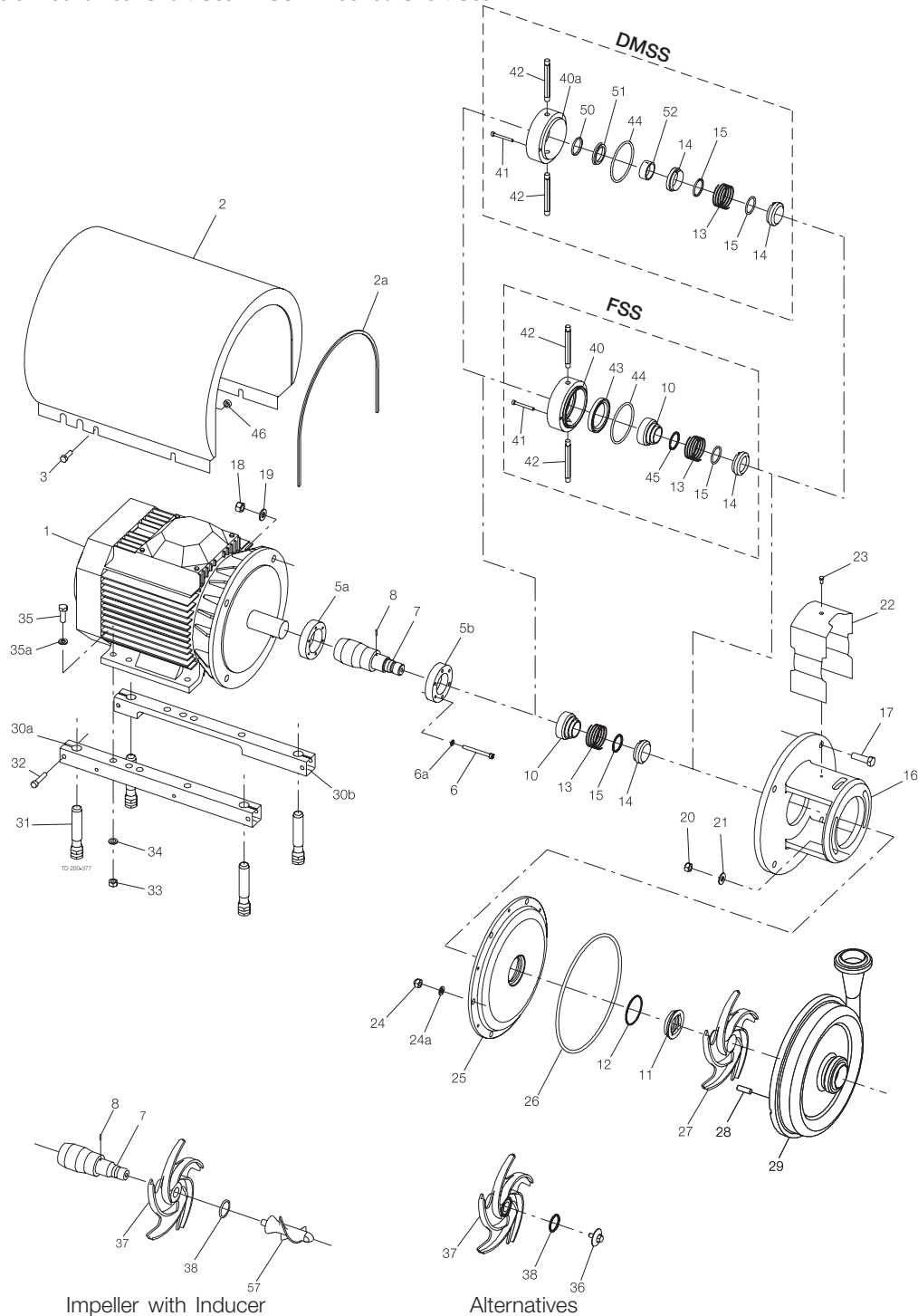
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7 Parts list and Service Kits

The drawing and the parts list include all items.

7.12 LKH-50 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal

DMSS = Double Mechanical Shaft Seal. FSS = Flushed Shaft Seal



7 Parts list and Service Kits

The drawing and the parts list include all items.

Parts list

Pos.	Qty	Denomination
1	1	Motor
	1	Motor
2	1	Shroud
	1	Shroud
2a	1	Edge list
	1	Edge list
3	4	Screw
5a	1	Compression ring with thread
5b	1	Compression ring without thread
6	6	Screw
6a	6	Washer
7	1	Shaft
8	1	Connex pin
10	1	Drive ring
16	1	Adaptor
17	4	Screw for adaptor
18	4	Nut for adaptor
19	4	Washer for adaptor
20	2	Nut
21	2	Washer
22	1	Safety guard
23	1	Screw for safety guard
24	6	Cap nut
24a	6	Washer
25	1	Back plate
26	1	O-ring
27	1	Impeller
28	6	Bolt
29	1	Pump casing
30a	1	Support bar, right
30b	1	Support bar, left
31	4	Leg
32	4	Screw
33	4	Nut
34	4	Spring washer
35	4	Screw
35a	4	Washer
36	1	Impeller screw
37	1	Impeller for impeller screw
38	1	O-ring
40	1	Seal housing
40a	1	Seal housing
41	2	Screw for seal housing
42	2	Tube
46	4	Distance
57	1	Inducer

Service kits

Denomination	C/SIC	SIC/SIC
Service kit for single shaft seal		
Service kit, EPDM (Std.)	□ 9611-92-2088	✦ 9611-92-2619
Service kit, NBR	□ 9611-92-2089	✦ 9611-92-2620
Service kit, FPM	□ 9611-92-2090	✦ 9611-92-2621
Service kit, FEP	□ 9611-92-2091	✦ 9611-92-2622
Service kit for single shaft seal and impeller screw		
Service kit, EPDM (Std.)	◆ 9611-92-2130	✦ 9611-92-2623
Service kit, NBR	◆ 9611-92-2131	✦ 9611-92-2624
Service kit, FPM	◆ 9611-92-2132	✦ 9611-92-2625
Service kit, FEP	◆ 9611-92-2133	✦ 9611-92-2626
Service kit for flushed shaft seal		
Service kit, EPDM (Std.)	○ 9611-92-2092	■ 9611-92-2627
Service kit, NBR	○ 9611-92-2093	■ 9611-92-2628
Service kit, FPM	○ 9611-92-2094	■ 9611-92-2629
Service kit, FEP	○ 9611-92-2095	■ 9611-92-2630
Service kit for flushed shaft seal and impeller screw		
Service kit, EPDM (Std.)	★ 9611-92-2134	✦ 9611-92-2631
Service kit, NBR	★ 9611-92-2135	✦ 9611-92-2632
Service kit, FPM	★ 9611-92-2136	✦ 9611-92-2633
Service kit, FEP	★ 9611-92-2137	✦ 9611-92-2634
Service kit for double mechanical shaft seal		
Service kit, EPDM (Std.)	△ 9611-92-2230	⌘ 9611-92-2635
Service kit, NBR	△ 9611-92-2231	⌘ 9611-92-2636
Service kit, FPM	△ 9611-92-2232	⌘ 9611-92-2637
Service kit, FEP	△ 9611-92-2233	⌘ 9611-92-2638
Service kit for double mechanical shaft seal and impeller screw		
Service kit, EPDM (Std.)	▲ 9611-92-2234	● 9611-92-2639
Service kit, NBR	▲ 9611-92-2235	● 9611-92-2640
Service kit, FPM	▲ 9611-92-2236	● 9611-92-2641
Service kit, FEP	▲ 9611-92-2237	● 9611-92-2642

Parts marked with □◆○★▲△✦✦⌘● are included in the service kits. Recommended Spare Parts: Service kits. Shaft seal: See page 56

Conversion kit, single to flushed shaft seal EPDM C/SIC 9611-92-2891 = Pos. 10+40+41+42+43+44+45

Conversion kit, single to double mechanical shaft seal EPDM C/SIC 9611-92-2175 = Pos. 13+14+15+40a+41+42+44+50+51+52

Conversion kit, single to double mechanical shaft seal EPDM SIC/SIC 9611-92-2326 = Pos. 13+14+15+40a+41+42+44+50+51+52

Conversion kit, flushed to double mechanical shaft seal EPDM C/SIC 9611-92-2176 = Pos. 13+14+40a+50+51+52

Replace to inducer (for pump with impellerscrew) please order pos. 7+57+38

Replace to inducer (for pump without impellerscrew) please order pos. 7+57+37+38.

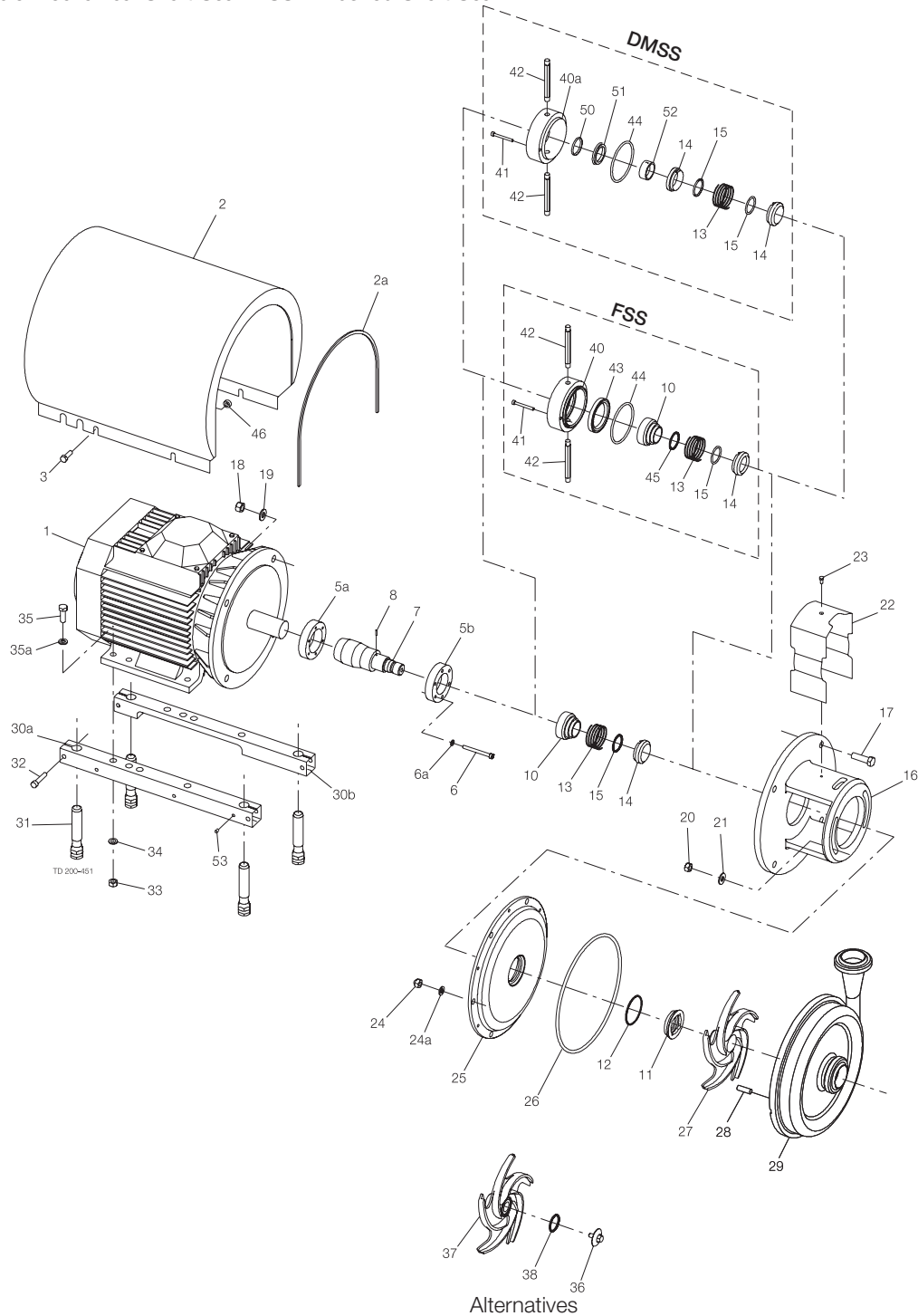
900017/5

7 Parts list and Service Kits

The drawing and the parts list include all items.

7.13 LKH-60 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal

DMSS = Double Mechanical Shaft Seal. FSS = Flushed Shaft Seal



7 Parts list and Service Kits

The drawing and the parts list include all items.

Parts list

Pos.	Qty	Denomination
1	1	Motor
	1	Motor
2a	1	Edge list
	1	Edge list
2	1	Shroud
	1	Shroud
3	4	Screw
5a	1	Compression ring with thread
5b	1	Compression ring without thread
6	6	Screw
6a	6	Washer
7	1	Shaft
8	1	Connex pin
10	1	Drive ring
16	1	Adaptor
17	4	Screw for adaptor
18	4	Nut for adaptor
19	4	Washer for adaptor
20	2	Nut
21	2	Washer
22	1	Safety guard
23	1	Screw for safety guard
24	6	Cap nut
24a	6	Spring washer
25	1	Back plate
26	1	O-ring
27	1	Impeller
28	6	Bolt
29	1	Pump casing
30a	1	Support bar, right
30b	1	Support bar, left
31	4	Leg
32	4	Screw
33	4	Nut
34	4	Spring washer
35	4	Screw
35a	4	Washer
36	1	Impeller screw
37	1	Impeller for impeller screw
38	1	O-ring
40	1	Seal housing
41	2	Screw for seal housing
42	2	Tube
46	4	Distance sleeve
53	4	Pivot screw (30 kW only)

Service kits

Denomination	C/SIC	SIC/SIC
Service kit for single shaft seal		
Service kit, EPDM (Std.)	□ 9611-92-2088	✦ 9611-92-2619
Service kit, NBR	□ 9611-92-2089	✦ 9611-92-2620
Service kit, FPM	□ 9611-92-2090	✦ 9611-92-2621
Service kit, FEP	□ 9611-92-2091	✦ 9611-92-2622
Service kit for single shaft seal and impeller screw		
Service kit, EPDM (Std.)	◆ 9611-92-2130	✦ 9611-92-2623
Service kit, NBR	◆ 9611-92-2131	✦ 9611-92-2624
Service kit, FPM	◆ 9611-92-2132	✦ 9611-92-2625
Service kit, FEP	◆ 9611-92-2133	✦ 9611-92-2626
Service kit for flushed shaft seal		
Service kit, EPDM (Std.)	○ 9611-92-2092	■ 9611-92-2627
Service kit, NBR	○ 9611-92-2093	■ 9611-92-2628
Service kit, FPM	○ 9611-92-2094	■ 9611-92-2629
Service kit, FEP	○ 9611-92-2095	■ 9611-92-2630
Service kit for flushed shaft seal and impeller screw		
Service kit, EPDM (Std.)	★ 9611-92-2134	✦ 9611-92-2631
Service kit, NBR	★ 9611-92-2135	✦ 9611-92-2632
Service kit, FPM	★ 9611-92-2136	✦ 9611-92-2633
Service kit, FEP	★ 9611-92-2137	✦ 9611-92-2634
Service kit for double mechanical shaft seal		
Service kit, EPDM (Std.)	△ 9611-92-2230	⌘ 9611-92-2635
Service kit, NBR	△ 9611-92-2231	⌘ 9611-92-2636
Service kit, FPM	△ 9611-92-2232	⌘ 9611-92-2637
Service kit, FEP	△ 9611-92-2233	⌘ 9611-92-2638
Service kits		
Denomination	C/SIC	SIC/SIC
Service kit for double mechanical shaft seal and impeller screw		
Service kit, EPDM (Std.)	▲ 9611-92-2234	● 9611-92-2639
Service kit, NBR	▲ 9611-92-2235	● 9611-92-2640
Service kit, FPM	▲ 9611-92-2236	● 9611-92-2641
Service kit, FEP	▲ 9611-92-2237	● 9611-92-2642

Parts marked with □◆○★▲✦✧■⌘● are included in the service kits.

Recommended Spare Parts: Service kits.

Shaft seal: See page 56

Conversion kit, single to flushed shaft seal EPDM C/SIC 9611-92-2891 = Pos. 10+40+41+42+43+44+45

Conversion kit, single to double mechanical shaft seal EPDM C/SIC 9611-92-2175 = Pos. 13+14+15+40a+41+42+44+50+51+52

Conversion kit, single to double mechanical shaft seal EPDM SIC/SIC 9611-92-2326 = Pos. 13+14+15+40a+41+42+44+50+51+52

Conversion kit, flushed to double mechanical shaft seal EPDM C/SIC 9611-92-2176 = Pos. 13+14+40a+50+51+52

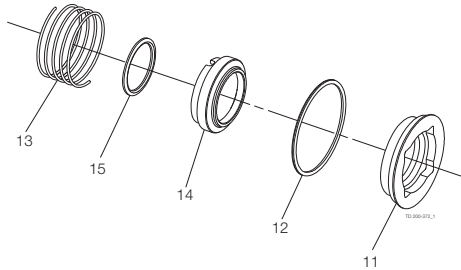
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7 Parts list and Service Kits

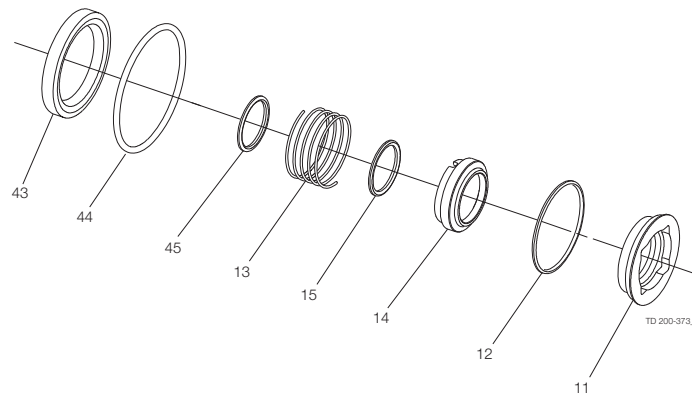
The drawing and the parts list include all items.

7.14 LKH 5-60 Centrifugal Pumps, Shaft Seals

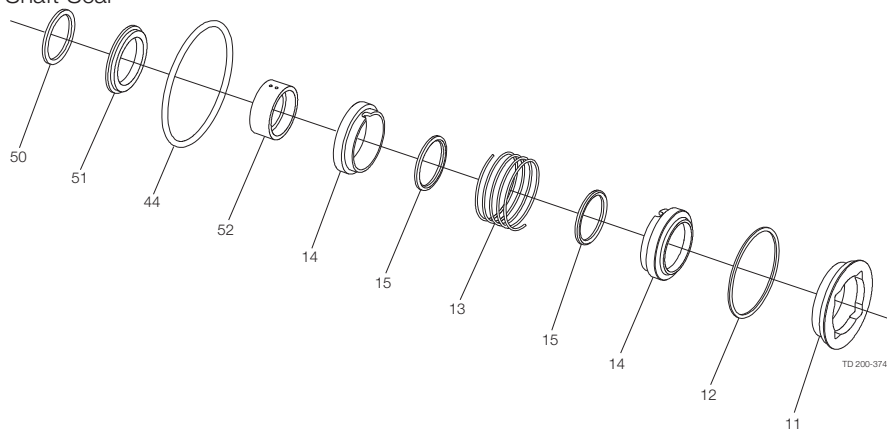
Single Shaft Seal.



Flushed Shaft Seal.



Double Mechanical Shaft Seal



The drawing and the parts list include all items.

Parts list

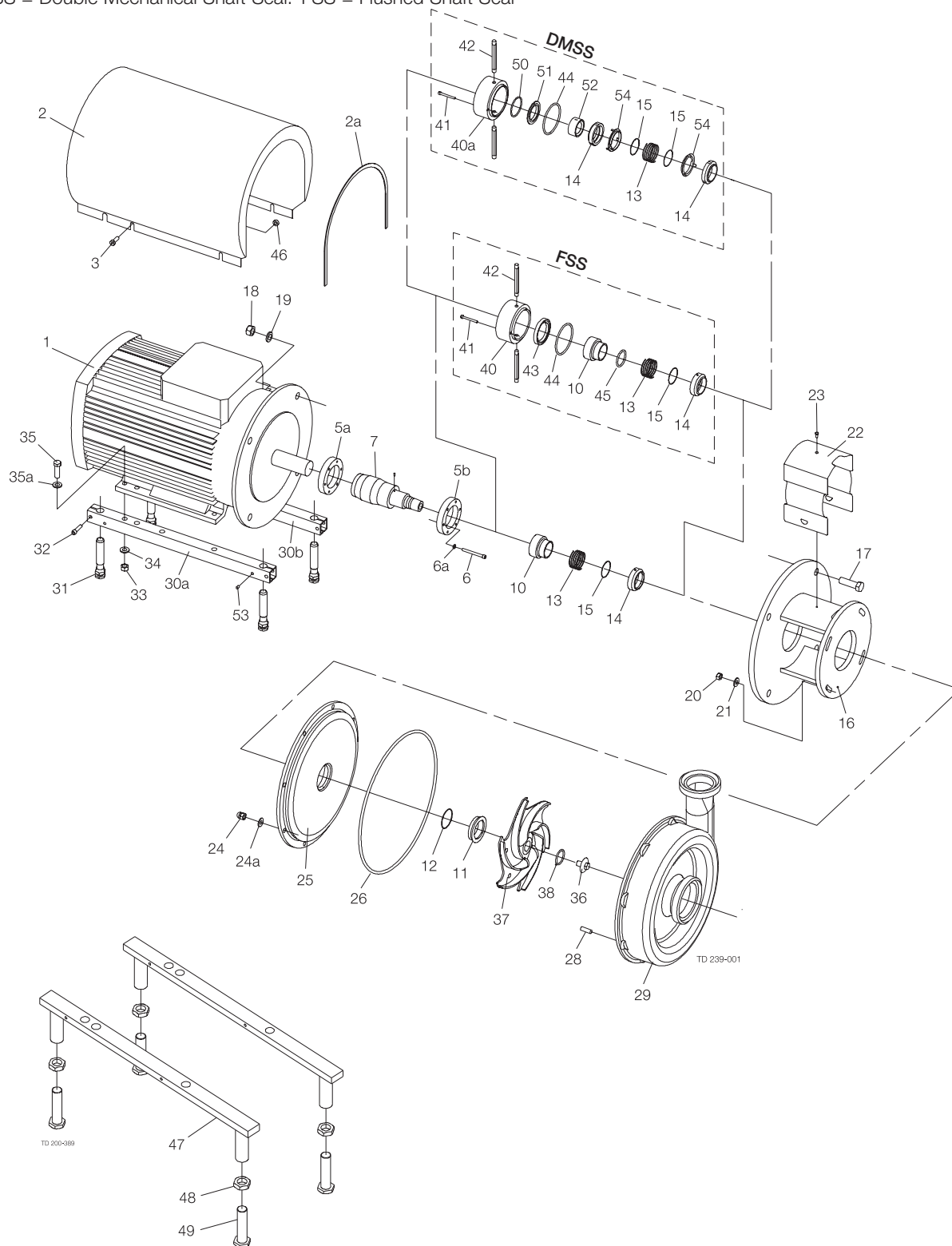
Pos.	Qty	Denomination
□✧		Complete shaft seal
◆✧		Complete shaft seal
○■		Complete shaft seal
★⊗		Complete shaft seal
▲%		Complete shaft seal
△●		Complete shaft seal
11	1	Stationary seal ring
12	1	O-ring
13	1	Spring
14	1	Rotating seal ring
	2	Rotating seal ring, carbon
15	1	O-ring
	2	O-ring
43	1	Lip seal
44	1	O-ring for seal housing
45	1	O-ring for drive ring
50	1	O-ring
51	1	Sec. stationary seal ring
52	1	Drive ring

7 Parts list and Service Kits

The drawing and the parts list include all items.

7.15 LKH-70 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal

DMSS = Double Mechanical Shaft Seal. FSS = Flushed Shaft Seal



Legs for motor sizes 55-75 kW

7 Parts list and Service Kits

The drawing and the parts list include all items.

Parts list

Pos.	Qty	Denomination
1	1	Motor
2	1	Shroud
2a	1	Edge list
3	4	Screw
5a	1	Compression ring with thread
5b	1	Compression ring without thread
6	6	Screw
6a	6	Washer
7	1	Shaft
10	1	Drive ring
16	1	Adaptor
17	4	Screw for adaptor
18	4	Nut for adaptor
19	4	Washer for adaptor
20	4	Nut
21	4	Washer
22	1	Safety guard
23	1	Screw for safety guard
24	8	Cap nut
24a	8	Spring washer
25	1	Back plate
26	1	O-ring
28	8	Pin bolt
29	1	Pump casing
30a	1	Support bar, right
30b	1	Support bar, left
31	4	Leg
32	4	Screw
33	4	Nut
34	4	Spring washer
35	4	Screw
35a	4	Washer
36	1	Impeller screw
37	1	Impeller
38	1	O-ring
40	1	Seal housing
40a	1	Seal housing
41	2	Screw for seal housing
42	2	Tube
46	4	Distance sleeve
47	2	Leg bracket
48	4	Nut for leg
49	4	Screw for leg
53	4	Pivot screw

Service kits

Denomination	C/SIC	SIC/SIC
Service kit for single shaft seal		
Service kit, EPDM (Std.)	□ 9611-92-2238	✦ 9611-92-2643
Service kit, NBR	□ 9611-92-2239	✦ 9611-92-2644
Service kit, FPM.....	□ 9611-92-2240	✦ 9611-92-2645
Service kit, FEP	□ 9611-92-2241	✦ 9611-92-2646
Service kit for flushed shaft seal		
Service kit, EPDM (Std.)	◆ 9611-92-2242	✦ 9611-92-2647
Service kit, NBR	◆ 9611-92-2243	✦ 9611-92-2648
Service kit, FPM.....	◆ 9611-92-2244	✦ 9611-92-2649
Service kit, FEP	◆ 9611-92-2245	✦ 9611-92-2650
Service kit for double mechanical shaft seal		
Service kit, EPDM (Std.)	★ 9611-92-2416	■ 9611-92-2651
Service kit, NBR	★ 9611-92-2417	■ 9611-92-2652
Service kit, FPM.....	★ 9611-92-2418	■ 9611-92-2653
Service kit, FEP	★ 9611-92-2419	■ 9611-92-2654

Parts marked with □◆★▲✦✧■⊗● are included in the service kits.

Recommended Spare Parts: Service kits.

Shaft seal: See page 68

Conversion kit, single to flushed shaft seal EPDM C/SIC 9611-92-2246 = Pos 40+41+42+43+44+45

Conversion kit, single to double mechanical shaft seal EPDM C/SIC 9611-92-2420 = Pos.13+14+15+ 40a+41+42+44+50+51+52+54

Conversion kit, flushed to double mechanical shaft seal EPDM C/SIC 9611-92-2421 = Pos.13+14+15+ 40a+41+50+51+52+54

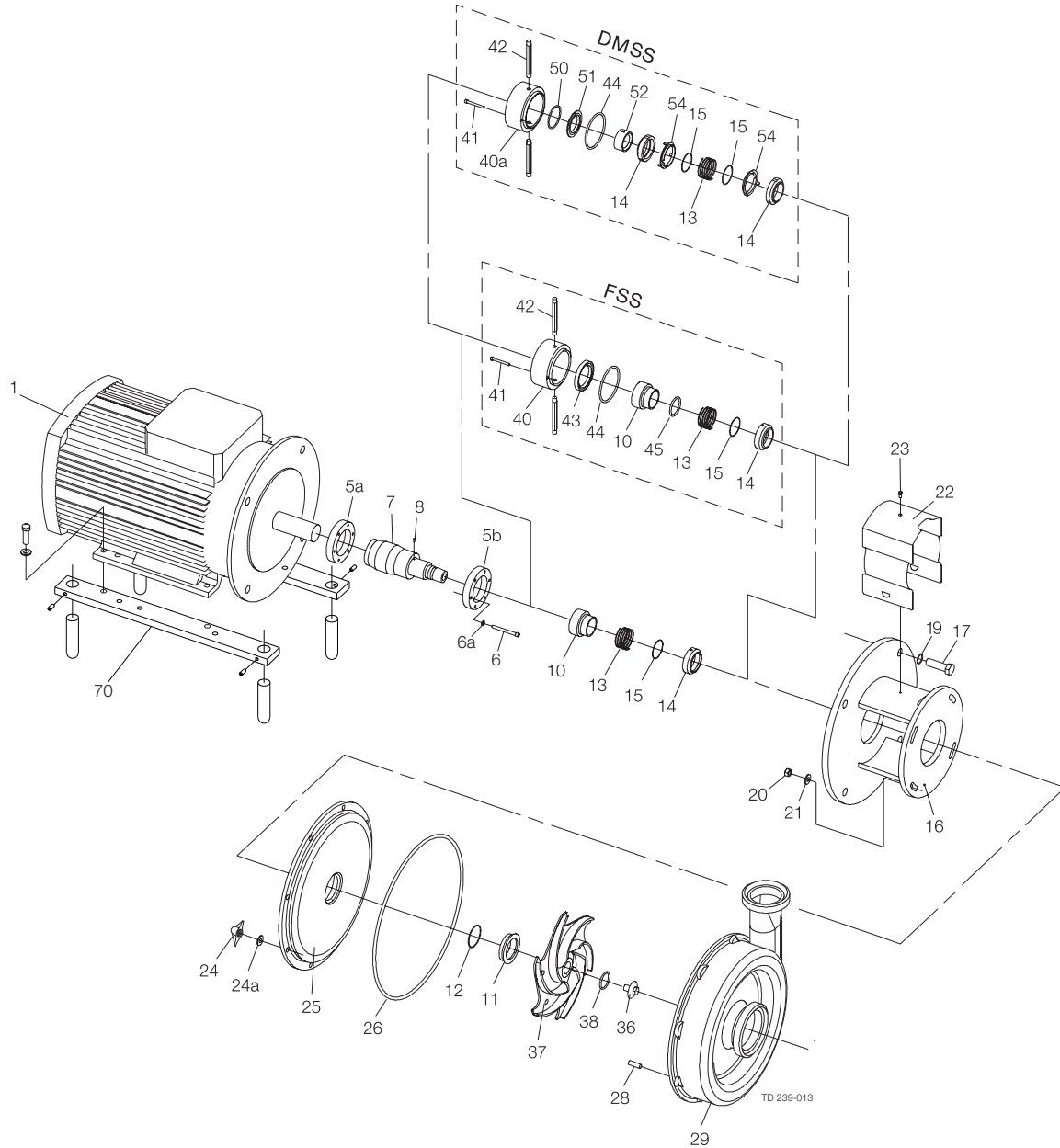
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7 Parts list and Service Kits

The drawing and the parts list include all items.

7.16 LKH-75 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal

DMSS = Double Mechanical Shaft Seal. FSS = Flushed Shaft Seal



7 Parts list and Service Kits

The drawing and the parts list include all items.

Parts list

Pos.	Qty	Denomination
1	1	Motor
5a	1	Compression ring with thread
5b	1	Compression ring without thread
6	6	Screw
6a	6	Washer
7	1	Shaft with pin
10	1	Drive ring
16	1	Adaptor
17	4	Screw for adaptor
19	4	Washer for adaptor
20	4	Nut
21	4	Washer
22	1	Safety guard
23	1	Screw for safety guard
24	8	Wing nut
24a	8	Spring washer
25	1	Back plate
26	1	O-ring
28	8	Pin bolt
29	1	Pump casing
36	1	Impeller screw
37	1	Impeller
38	1	O-ring
40	1	Seal housing
40a	1	Seal housing
41	2	Screw for seal housing
42	2	Tube
70	1	Bracket set stainless steel

Service kits

Denomination	C/SIC	SIC/SIC
Service kit for single shaft seal		
Service kit, EPDM (Std.)	□ 9611-92-2976	★ 9611-92-2985
Service kit, NBR	□ 9611-92-2977	★ 9611-92-2986
Service kit, FPM.....	□ 9611-92-2978	★ 9611-92-2987
Service kit for flushed shaft seal		
Service kit, EPDM (Std.)	◆ 9611-92-2979	▲ 9611-92-2988
Service kit, NBR	◆ 9611-92-2980	▲ 9611-92-2989
Service kit, FPM.....	◆ 9611-92-2981	▲ 9611-92-2990
Service kit for double mechanical shaft seal		
Service kit, EPDM (Std.)	○ 9611-92-2982	▲ 9611-92-2991
Service kit, NBR	○ 9611-92-2983	▲ 9611-92-2992
Service kit, FPM.....	○ 9611-92-2984	▲ 9611-92-2993

Parts marked with □◆○★▲◆◇◆■⌘⊕● are included in the service kits.

Recommended Spare Parts: Service kits.

Shaft seal: See page 68

Conversion kit, single to flushed shaft seal EPDM C/SIC 9611-92-2246 = Pos 40+41+42+43+44+45

Conversion kit, single to double mechanical shaft seal EPDM C/SIC 9611-92-2420 = Pos.13+14+15+ 40a+41+42+44+50+51+52+54

Conversion kit, flushed to double mechanical shaft seal EPDM C/SIC 9611-92-2421 = Pos.13+14+15+ 40a+41+50+51+52+54

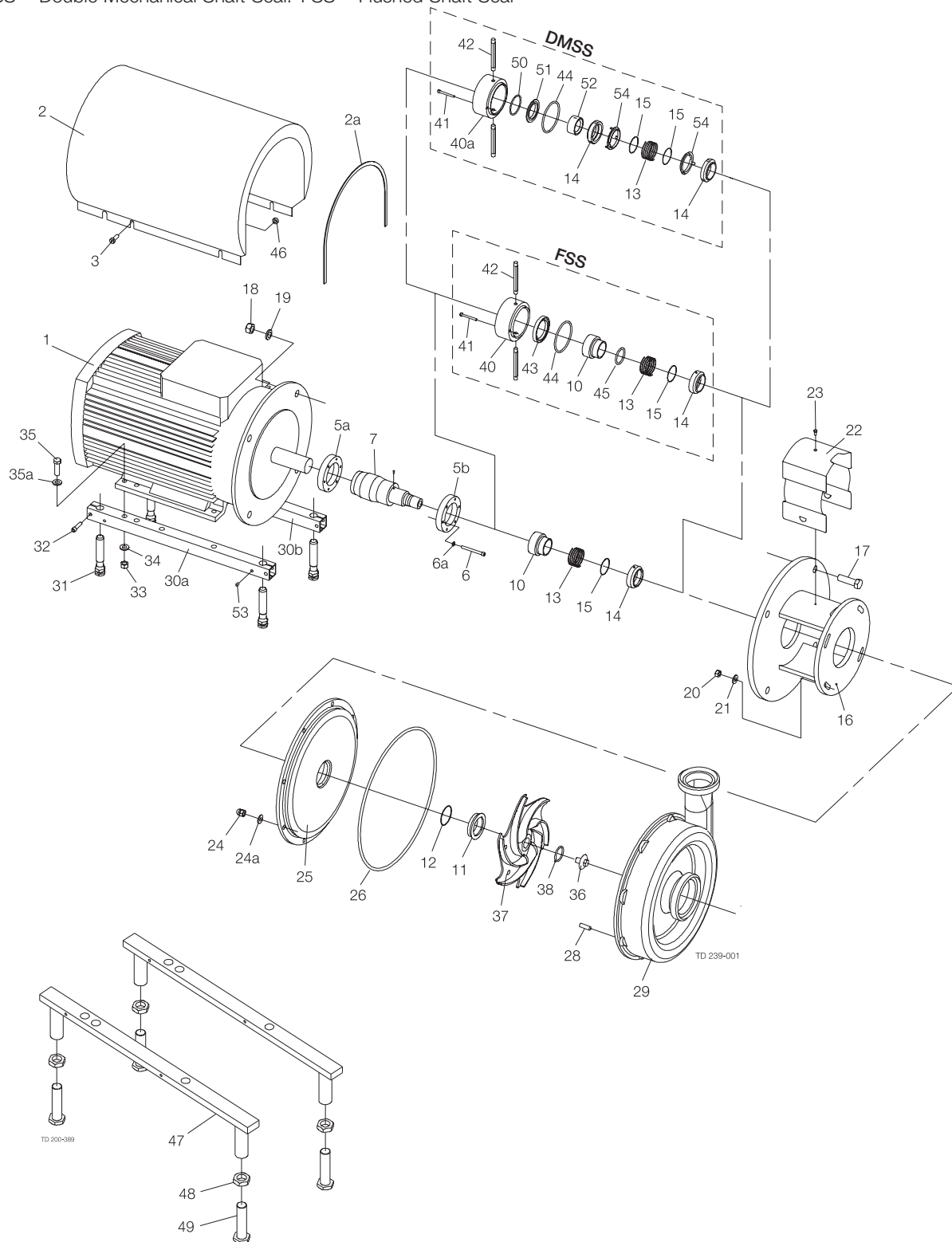
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7 Parts list and Service Kits

The drawing and the parts list include all items.

7.17 LKH-80 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal

DMSS = Double Mechanical Shaft Seal. FSS = Flushed Shaft Seal



Legs for motor sizes 55-75 kW

7 Parts list and Service Kits

The drawing and the parts list include all items.

Parts list

Pos.	Qty	Denomination
1	1	Motor
2	1	Shroud
2a	1	Edge list
3	4	Screw
5a	1	Compression ring with thread
5b	1	Compression ring without thread
6	6	Screw
6a	6	Washer
7	1	Shaft
10	1	Drive ring
16	1	Adaptor
17	4	Screw for adaptor
18	4	Nut for adaptor
19	4	Washer for adaptor
20	4	Nut
21	4	Washer
22	1	Safety guard
23	1	Screw for safety guard
24	8	Cap nut
24a	8	Spring washer
25	1	Back plate
26	1	O-ring
27	1	Impeller
28	8	Pin bolt
29	1	Pump casing
30a	1	Support bar, right
30b	1	Support bar, left
31	4	Leg
32	4	Screw
33	4	Nut
34	4	Spring washer
35	4	Screw
35a	4	Washer
36	1	Impeller screw
37	1	Impeller
38	1	O-ring
40	1	Seal housing
41	2	Screw for seal housing
42	2	Tube
46	4	Distance sleeve
47	2	Leg bracket
48	4	Nut for leg
49	4	Screw for leg
53	4	Pivot screw

Parts marked with $\square \blacklozenge \star \blacktriangle \blacklozenge \blacklozenge \blacksquare \bullet$ are included in the service kits.

Recommended Spare Parts: Service kits.

Shaft seal: See page 68

Conversion kit, single to flushed shaft seal EPDM C/SIC 9611-92-2246 = Pos 40+41+42+43+44+45

Conversion kit, single to double mechanical shaft seal EPDM C/SIC 9611-92-2420 = Pos.13+14+15+ 40a+41+42+44+50+51+52+54

Conversion kit, flushed to double mechanical shaft seal EPDM C/SIC 9611-92-2421 = Pos.13+14+15+ 40a+41+50+51+52+54

900058/8

Service kits

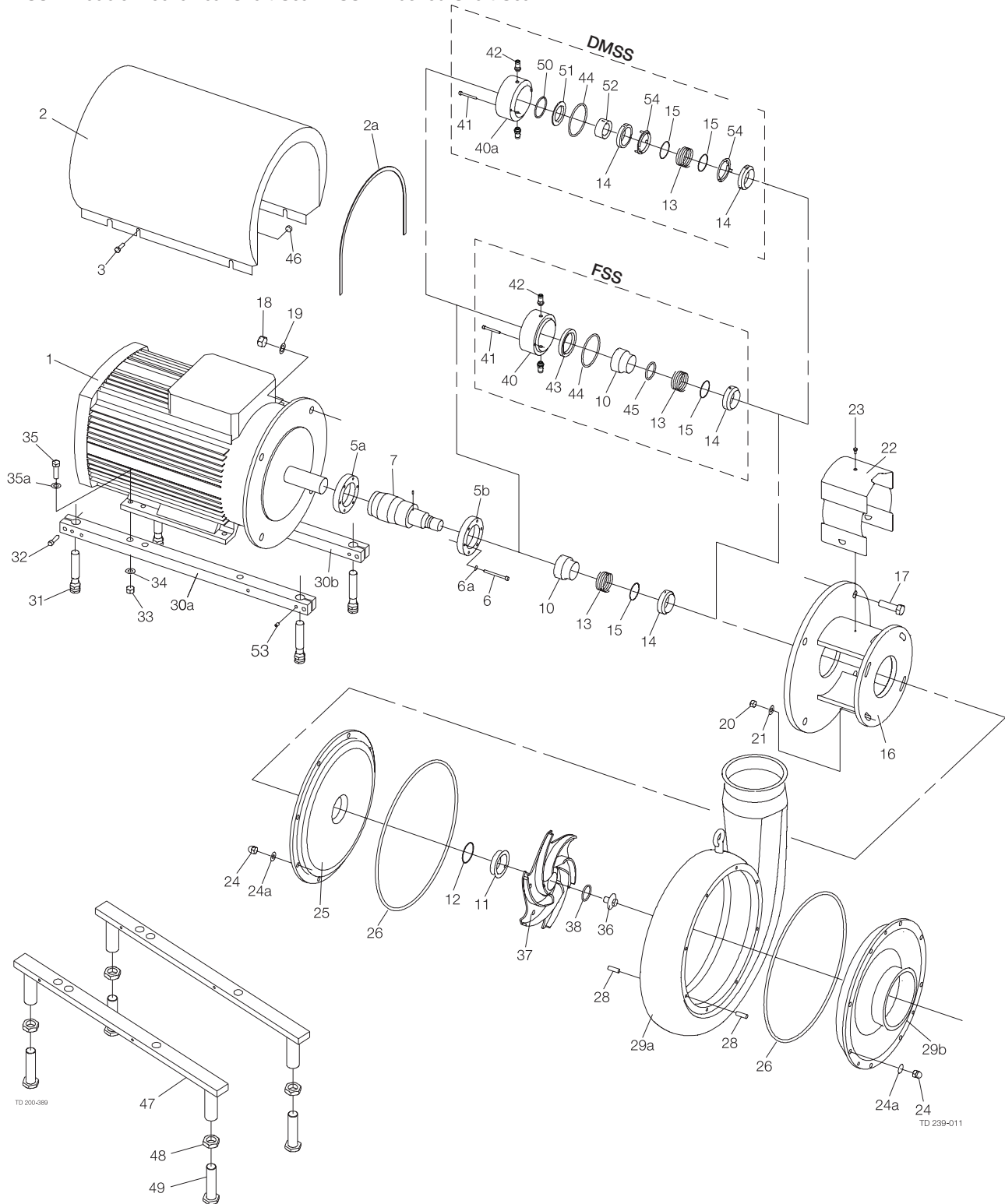
Denomination	C/SIC	SIC/SIC
Service kit for single shaft seal		
Service kit, EPDM.....	\square 9611-92-2843	\blacklozenge 9611-92-2855
Service kit, NBR	\square 9611-92-2844	\blacklozenge 9611-92-2856
Service kit, FPM.....	\square 9611-92-2845	\blacklozenge 9611-92-2857
Service kit, FEP	\square 9611-92-2846	\blacklozenge 9611-92-2858
Service kit for flushed shaft seal		
Service kit, EPDM.....	\blacklozenge 9611-92-2847	\blacklozenge 9611-92-2859
Service kit, NBR	\blacklozenge 9611-92-2848	\blacklozenge 9611-92-2860
Service kit, FPM.....	\blacklozenge 9611-92-2849	\blacklozenge 9611-92-2861
Service kit, FEP	\blacklozenge 9611-92-2850	\blacklozenge 9611-92-2862
Service kit for double mechanical shaft seal		
Service kit, EPDM.....	\star 9611-92-2851	\blacksquare 9611-92-2863
Service kit, NBR	\star 9611-92-2852	\blacksquare 9611-92-2864
Service kit, FPM.....	\star 9611-92-2853	\blacksquare 9611-92-2865
Service kit, FEP	\star 9611-92-2854	\blacksquare 9611-92-2866

7 Parts list and Service Kits

The drawing and the parts list include all items.

7.18 LKH-85 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal

DMSS = Double Mechanical Shaft Seal. FSS = Flushed Shaft Seal



Legs for motor sizes 55-110 kW

7 Parts list and Service Kits

The drawing and the parts list include all items.

Parts list

Pos.	Qty	Denomination
1	1	Motor
2a	1	Edge list
2	1	Shroud
3	4	Screw
5a	1	Compression ring with thread
5b	1	Compression ring without thread
6	6	Screw (30 - 75 kW)
	8	Screw (90 - 110 kW)
6a	6	Washer (30 - 75 kW)
	8	Washer (90 - 110 kW)
7	1	Shaft with pin
10	1	Drive ring
16	1	Adaptor
17	4	Screw for adaptor
18	4	Nut for adaptor
19	4	Washer for adaptor
20	4	Nut
21	4	Washer
22	1	Safety guard
23	1	Screw for safety guard
24	16	Cap nut
24a	16	Spring washer
25	1	Back plate
26	2	O-ring
28	16	Pin bolt
29a	1	Pump casing
30a	1	Support bar, right
30b	1	Support bar, left
31	4	Leg
32	4	Screw
33	4	Nut
34	4	Spring washer
35	4	Screw
35a	4	Washer
36	1	Impeller screw
37	1	Impeller
38	1	O-ring
40	1	Seal housing
41	2	Screw for seal housing
42	2	Fitting
46	4	Distance sleeve
47	2	Leg bracket
48	4	Nut for leg
49	4	Screw for leg
53	4	Pivot screw

Service kits

Denomination	C/SIC	SIC/SIC
Service kit for single shaft seal		
Service kit, EPDM (Std.)	□ 9611-92-2952	✦ 9611-92-2964
Service kit, NBR	□ 9611-92-2953	✦ 9611-92-2965
Service kit, FPM.....	□ 9611-92-2954	✦ 9611-92-2966
Service kit, FEP	□ 9611-92-2955	✦ 9611-92-2967
Service kit for flushed shaft seal		
Service kit, EPDM (Std.)	◆ 9611-92-2956	✦ 9611-92-2968
Service kit, NBR	◆ 9611-92-2957	✦ 9611-92-2969
Service kit, FPM.....	◆ 9611-92-2958	✦ 9611-92-2970
Service kit, FEP	◆ 9611-92-2959	✦ 9611-92-2971
Service kit for double mechanical shaft seal		
Service kit, EPDM (Std.)	○ 9611-92-2960	■ 9611-92-2972
Service kit, NBR	○ 9611-92-2961	■ 9611-92-2973
Service kit, FPM.....	○ 9611-92-2962	■ 9611-92-2974
Service kit, FEP	○ 9611-92-2963	■ 9611-92-2975

Parts marked with □◆○★▲✦✧■%☉● are included in the service kits.

Recommended Spare Parts: Service kits.

Shaft seal: See page 56

Conversion kit, single to flushed shaft seal EPDM C/SIC 9611-92-2246 = Pos 40+41+42+43+44+45

Conversion kit, single to double mechanical shaft seal EPDM C/SIC 9611-92-2420 = Pos.13+14+15+ 40a+41+42+44+50+51+52+54

Conversion kit, flushed to double mechanical shaft seal EPDM C/SIC 9611-92-2421 = Pos.13+14+15+ 40a+41+50+51+52+54

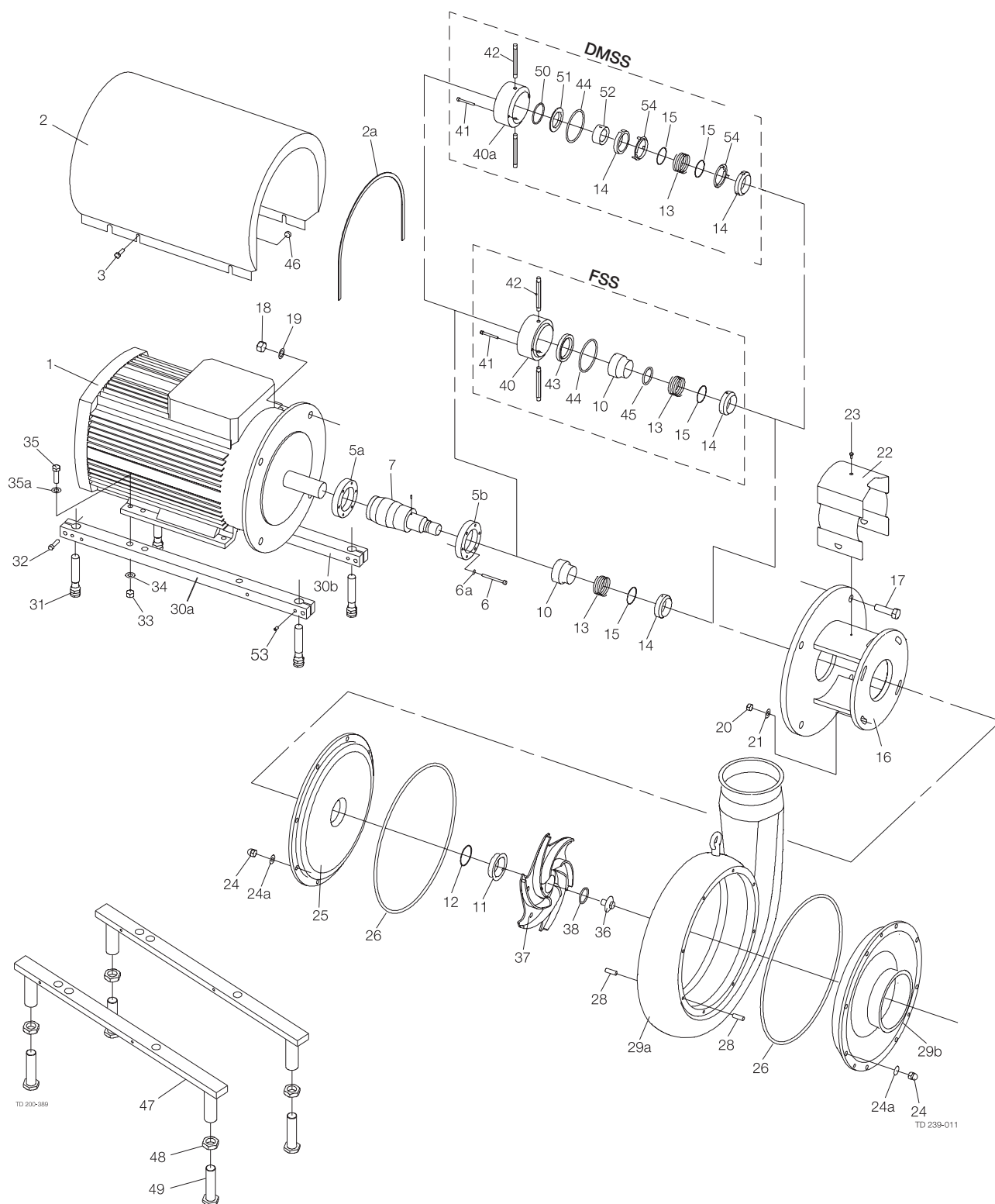
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7 Parts list and Service Kits

The drawing and the parts list include all items.

7.19 LKH-90 Centrifugal Pump Single, Flushed and Double Mechanical Shaft Seal

DMSS = Double Mechanical Shaft Seal. FSS = Flushed Shaft Seal



Legs for motor sizes 55-75 kW

7 Parts list and Service Kits

The drawing and the parts list include all items.

Parts list

Pos.	Qty	Denomination
1	1	Motor
2	1	Shroud
2a	1	Edge list
3	4	Screw
5a	1	Compression ring with thread
5b	1	Compression ring without thread
6	6	Screw (30 - 45 kW)
	8	Screw (55-75 kW)
6a	6	Washer (30 - 45 kW)
	8	Washer (55-75 kW)
7	1	Shaft with pin
10	1	Drive ring
16	1	Adaptor
17	4	Screw for adaptor
18	4	Nut for adaptor
19	4	Washer for adaptor
20	4	Nut
21	4	Washer
22	1	Safety guard
23	1	Screw for safety guard
24	16	Cap nut
24a	16	Spring washer
25	1	Back plate
26	2	O-ring
28	16	Pin bolt
29	1	Pump casing
29a	1	Pump cover
30a	1	Support bar, right
30b	1	Support bar, left
31	4	Leg
32	4	Screw
33	4	Nut
34	4	Spring washer
35	4	Screw
35a	4	Washer
36	1	Impeller screw
37	1	Impeller
38	1	O-ring
40	1	Seal housing
40a	1	Seal housing
41	2	Screw for seal housing
42	2	Tube
46	4	Distance sleeve
47	2	Leg bracket
48	4	Nut for leg
49	4	Screw for leg
53	4	Pivot screw

Service kits

Denomination	C/SIC	SIC/SIC
Service kit for single shaft seal		
Service kit, EPDM (Std.)	□ 9611-92-2867	✦ 9611-92-2879
Service kit, NBR	□ 9611-92-2868	✦ 9611-92-2880
Service kit, FPM.....	□ 9611-92-2869	✦ 9611-92-2881
Service kit, FEP	□ 9611-92-2870	✦ 9611-92-2882
Service kit for flushed shaft seal		
Service kit, EPDM (Std.)	◆ 9611-92-2871	✦ 9611-92-2883
Service kit, NBR	◆ 9611-92-2872	✦ 9611-92-2884
Service kit, FPM.....	◆ 9611-92-2873	✦ 9611-92-2885
Service kit, FEP	◆ 9611-92-2874	✦ 9611-92-2886
Service kit for double mechanical shaft seal		
Service kit, EPDM (Std.)	★ 9611-92-2875	■ 9611-92-2887
Service kit, NBR	★ 9611-92-2876	■ 9611-92-2888
Service kit, FPM.....	★ 9611-92-2877	■ 9611-92-2889
Service kit, FEP	★ 9611-92-2878	■ 9611-92-2890

Parts marked with □◆★▲✦✧■%● are included in the service kits.

Recommended Spare Parts: Service kits.

Shaft seal: See page 68

Conversion kit, single to flushed shaft seal EPDM C/SIC 9611-92-2246 = Pos 40+41+42+43+44+45

Conversion kit, single to double mechanical shaft seal EPDM C/SIC 9611-92-2420 = Pos.13+14+15+ 40a+41+42+44+50+51+52+54

Conversion kit, flushed to double mechanical shaft seal EPDM C/SIC 9611-92-2421 = Pos.13+14+15+ 40a+41+50+51+52+54

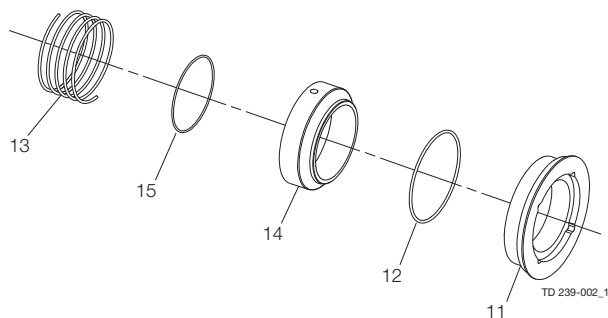
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7 Parts list and Service Kits

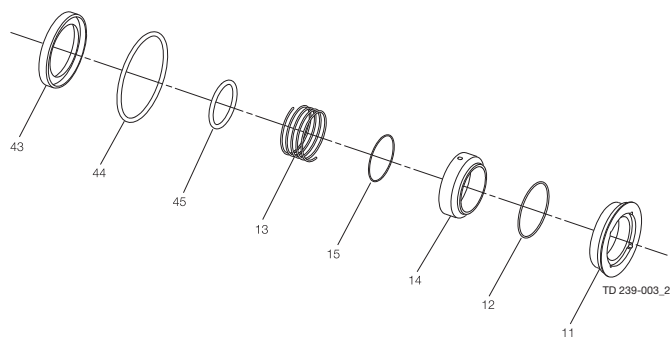
The drawing and the parts list include all items.

7.20 LKH-70, LKH-75, LKH-80, LKH-85 and LKH-90 Centrifugal Pump, Shaft Seal

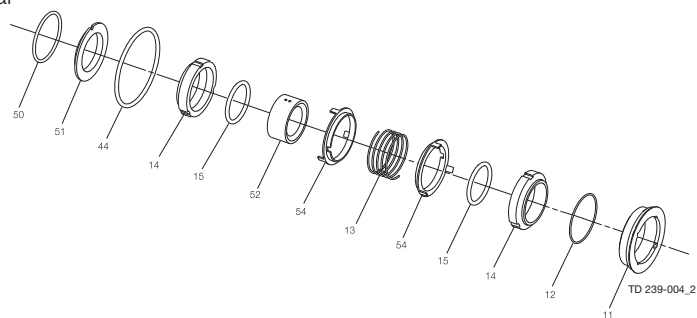
Single Shaft Seal



Flushed Shaft Seal



Double Mechanical Shaft Seal



The drawing and the parts list include all items.

Parts list

Pos.	Qty	Denomination
□		Complete shaft seal
❖		Complete shaft seal
◆		Complete shaft seal
◇		Complete shaft seal
○		Complete shaft seal
■		Complete shaft seal
11	1	Stationary seal ring, SiC.
12	1	O-ring
13	1	Spring
14	1	Rotating seal ring
	2	Rotating seal ring
15	1	O-ring
	2	O-ring
43	1	Lip seal
44	1	O-ring for seal housing
45	1	O-ring for drive ring
50	1	O-ring
51	1	Sec. stationary seal ring, SiC.
52	1	Drive ring
54	2	Cup



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